the magazine of STANDARDS

traffic control devices . . . page 133

MAY 1961

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Vol. 32 No. 5 May, 1961

FEATURES

NEWS

DEPARTMENTS

Opinions expressed by authors in THE MAGAZINE OF STANDARDS are not necessarily those of the American Standards Association.

Published monthly by the American Standards Association, Incorporated, 10 East 40th Street, New York 16, N. Y.

Subscription rates: Companies in U. S. and possessions, $7.00 per year; in other countries, $8.00. Public libraries, schools, and government agencies, in U. S. and possessions, $6.00 per year; in other countries, $7.00. Single copy 60 cents. Re-entered as second class matter Jan. 25, 1954, at the Post Office, New York, N. Y., under the Act of March 3, 1879. Indexed in the Engineering Index and the Industrial Arts Index. Microfilm copies can be obtained from University Microfilms, Ann Arbor, Mich.

Editor: Ruth E. Mason

Art and Production Editor: Margaret Lovely

Advertising Representative:
Irving Mallon, 7th Floor, 302 Fifth Avenue, New York 1, N. Y. (OXford 5-4759)

ASA

THE COVER: Five roads and highways meet in this Kew Gardens Interchange in Queens, New York. An engineering feat in itself, this complex of highways offers an unusual challenge to engineers who must design a sixth highway to merge with the existing five. The sixth road, for which New York State has already appropriated funds, will lead from one of the Interchange highways, across the Interchange, to the 1964 World's Fair at Flushing, Queens.

Photo by Jack Eden.

notes

• Since our introduction to the Space Age, the scientific community has been viewing with alarm U.S. progress in development of materials. The new environments call for new materials as well as for new knowledge of existing materials, they say. To supply this new knowledge, the Defense Department's Advanced Research Projects Agency last year awarded contracts to three universities for basic research on materials. But at the same time others have been moving forward steadily and surely on a more normal level. The technical committees of the American Society for Testing Materials in their work on standard tests and specifications constantly contribute to greater knowledge of the materials we have and to better and more effective use of them. Work of ASTM committees on materials used by industry is reported on page 140.

• The 84½ million car, truck, and bus drivers in the United States must watch with pleasure as uniform traffic signals and highway markings continue to spread across the country. Basis for the increasing uniformity is the American Standard Manual, now brought up to date (page 133).

• At this crucial time in the relations of American countries with each other, and as this issue goes to press, a U.S. delegation is attending a meeting of the Pan American Standards Committee at Montevideo, Uruguay. Representatives of the standards organizations of the South, Central, and North American countries are considering how they can strengthen cooperation on standards in this Hemisphere. ASA delegates include ASA's president and managing director, and representatives of the National Bureau of Standards, American Society for Testing Materials, Automobile Manufacturers Association, the International Nickel Company, and the General Electric Company.

This Month's Standards Personality

Vern L. Cox

DUPLICATION OF EFFORT in development of standards calls forth all the "fight" with which Vern L. Cox opposes an activity which he believes to be wrong. His conviction that industry and the public are victims of serious loss in time and money when the same problems are thrashed out again and again at different levels on the same standards has made him one of the outstanding statesmen of electrical engineering standardization. He is not content to sit back and talk about his objection to such duplication and waste. He acts to eliminate it.

Mr Cox is manager of Laboratory Operation, Switchgear and Control Division, General Electric Company, Philadelphia. Under his supervision, this G-E organizational component does research and development work, including short-circuit and high-voltage testing on switchgear and control products.

As part of his activities, he has represented his company in electrical industry standards activities, has represented his industry on the national level in the work of the American Standards Association, and on the international level has represented the U.S. National Committee at meetings of the International Electrotechnical Commission.

Mr Cox is a member of the Technical Advisory Committee of the National Electrical Manufacturers Association's Switchgear Section. He is also chairman of the Section's Power Circuit Breaker Group and a member of the Low Voltage Air Circuit Breaker Group. He is chairman of the ASA Sectional Committee on Power Switchgear, C37. He is also chairman of NEMA's representatives on Sectional Committee C37 and on the EEI-AEIC-NEMA (Edison Electric Institute-Association of Edison Illuminating Companies-National Electrical Manufacturers Association) Joint Committee on Power Circuit Breakers. Because of his high standing as an expert on power switchgear, Mr Cox is the technical advisor to the U.S. National Committee of the International Electrotechnical Commission on IEC/TC 17, Power Switchgear. He also qualifies as technical advisor on IEC/TC 32, Fuses, and on IEC/TC 41, Protective Relays. In addition, Mr Cox works on standards for bushings and insulation as a member of ASA Sectional Committees C76, Bushings, and C92, Insulation Coordination.

A Registered Engineer in the State of Pennsylvania, Mr Cox is a member of the National Society of Professional Engineers, and of a number of local engineering societies. He is a Fellow of the American Institute of Electrical Engineers. His interest in standards led him to become a member of the Standards Engineers Society, and his outstanding contributions to standardization have been recognized by the Society in making him an SES Fellow.

For relaxation, Mr Cox plays that game of presidents—golf.

NOW— A NEW MANUAL ON TRAFFIC CONTROL DEVICES

Markings and design of divisional islands and channelizing lanes are included in new manual, as well as standard traffic signs and markers.

A standard signal installation has two faces for each approach street.

by WILLIAM G. ELIOT, 3d

WELL OVER A DECADE HAS PASSED since the Manual on Uniform Traffic Control Devices for Streets and Highways (American Standard D6.1-1948) was last extensively revised. It is welcome news, therefore, that a new edition is now being published by the U.S. Government Printing Office. The 1948 Manual, designed for a highway system just recovering from World War II, has long been due for an updating.

Since the war, there have been no revolutionary changes in highway design or in the techniques of traffic control, but there has been a vast amount of highway modernization and new construction. This is particularly true on the new national system of interstate and defense highways, a program of unprecedented magnitude. Growing traffic volumes still press on our expanding facilities, however, and expressway speeds on all roads are commonplace.

The new Manual, while superficially much like the old, has many refinements, changes in emphasis, and new applications of engineering and psychological research. Notable are its recognition of expressway controls as a special problem, and its inclusion of an entirely new chapter on controls at highway construction and maintenance sites. Its expressway standards are broad enough to cover a wide range of express highways and freeways. Special standards for the interstate system, developed by the American Association of State Highway Officials, are cited where appropriate.

MR ELIOT is highway engineer with the U.S. Bureau of Public Roads, and secretary of the National Joint Committee on Uniform Traffic Control Devices.

The Manual is the product of the National Joint Committee on Uniform Traffic Control Devices, which includes representatives from the American Association of State Highway Officials, the Institute of Traffic Engineers, the National Committee on Uniform Traffic Laws and Ordinances, and, through a 1960 reorganization, the National Association of County Officials and the American Municipal Association. Each of these agencies has officially approved the revised Manual. The Federal Highway Administrator, under the authority of the Federal-aid Highway Act of 1944, has concurred in the new standard for application on Federal-aid highways, and the American Standards Association has accepted it as an American Standard, D6.1-1961, superseding the previous revision.

The completion of the new Manual, after several years of intensive work by the committee and by the staff of the Bureau of Public Roads, gives a new impetus to the achievement of national uniformity in traffic control devices—a uniformity that, in principle, is of unchallenged desirability. The Manual provides a modern standard, approved by a substantial majority

Today a coast-to-coast automobile trip is safer, easier, and more enjoyable due to generally uniform traffic markings and signs on state and interstate highways.

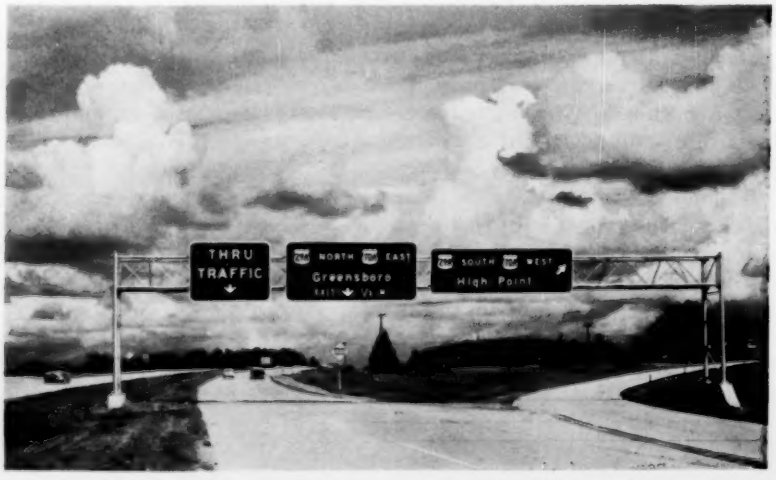
of the state highway departments and by the national agencies most concerned with facilitating traffic and improving traffic safety. Through its consistent application to the Federal-aid system, it will inevitably be extended to other highways, particularly those under state control. Roads and streets under the jurisdiction of local authorities have been most criticized for lack of unformity, but with the two national associations of local officials—the National Association of County Officials and the American Municipal Association—actively participating in the development of uniform standards and officially sponsoring them, standardization should now reach from the superhighways to the byways of the nation.

Though, as a matter of policy, the National Joint Committee on Uniform Traffic Control Devices has never included representatives of commercial interests, the traffic control manufacturers have maintained close liaison with the committee and are giving their support to the new standards.

To provide overall coordination of the movement for uniformity, the Joint Committee has named a broadly representative Subcommittee on Information, to publicize and promote the use of the Manual through every interested agency, through the press, and through official channels.

Editor's Note:
The American Standard Manual, D6.1- 1961, presents standardized highway signs and markers to serve as a guide for greater uniformity in the nation's highway traffic controls. As explained by Mr Eliot in *Traffic Engineering*, December 1960, "In this country, traffic control is traditionally a responsibility of the individual states, but a high degree of national uniformity has been attained under the leadership of the American Association of State Highway Officials and the United States Bureau of Public Roads, with the technical guidance of a semioffical national committee representing many agencies interested in traffic control and safety. On the new National System of Interstate and Defense Highways, traffic signs are being rigidly standardized, over the entire 41,000 miles of the proposed network. On our other state highways, uniformity is less complete, but still so generally consistent as to offer little difficulty or confusion to the traveler. Our major troubles are on city streets and local secondary roads, where directional guidance is too often inadequate."

American Standard D6.1-1961 is being published by the Government Printing Office. When copies are available, the standard will be included in the monthly list of "American Standards Published."



Traffic control signs on the national system of interstate and defense highways are rigidly standardized.

International Standards on Refrigeration

—Opportunity for U.S. leadership

Reported by A. T. Boggs, III

THE MEETINGS of the international committee on refrigeration, ISO/TC 86, held at Paris in October, 1960, again showed U.S. delegates that the opportunity exists for the United States to exert positive leadership.

The principal barrier to progress and mutual understanding in international standards work is communication. It was evident that in general the delegations desire the same type of engineering information in proposed recommendations, but that it is difficult to get an accurate interpretation from one language to another. The magnitude of this problem was evident in the fact that all the ISO/TC 86 meetings were conducted in two, sometimes three languages. The proposed recommendations will be published in as many as five languages. In some instances, the delegates found there was no straightforward translation from one language to another. The most important efforts made by the committee were related to the idea of communication between national groups, between individuals, and, most important, between national philosophies. The U.S. delegates feel that they made tremendous headway in all aspects of this work, particularly in interpreting the U.S. industrial system and standardization procedures.

The U.S. delegation to the meetings of ISO/TC 86 and its subcommittees was composed of F. J. Reed, chief engineer, Air-Conditioning and Refrigeration Institute; A. T. Boggs, III, American Society of Heating, Refrigerating, and Air Conditioning Engineers; and Dr D. E. Kvalnes, manager–technical, E. I. du Pont de Nemours & Company.

ISO/TC 86 has six subcommittees at work—Safety; Terminology, Definitions, and Symbols; Testing of Refrigerating Systems; Testing of Refrigerant Compressors; Construction and Testing of Household Refrigerators; Testing of Factory-Assembled Air-Conditioning Units. A special working group is also developing an international system of numbering refrigerants. Four of these committees and the working group met at Paris in October.

The membership of the subcommittee is truly international. Delegates were present at the Paris meeting representing Belgium, Czechoslovakia, Denmark, France, Germany, Holland, India, Italy, Russia, United Kingdom, and the USA, as well as other international bodies allied with the International Organization for Standardization or the general field of refrigeration.

In each of the subcommittees, all delegates looked to the U.S. for basic information included in its industry standards. All delegations recognized that the U.S. had progressed further in the refrigeration field —on compressors, refrigerators, and particularly air-conditioning equipment—than any other country. Since most countries already use U.S. standards as the basis for development of their own national standards on refrigeration, it is highly important that our participation in international work serve to avoid misinterpretation of our standards or misapplication of such data.

Four of the subcommittees and the working group on refrigerant numbering held meetings in Paris. The U.S. holds the secretariat for the working group and Subcommittee 6, Factory-Assembled Air Conditioning Units. Consequently, Dr Kvalnes served as chairman for the working group meeting with Mr Boggs as secretary; and Mr Reed served as chairman for Subcommittee 6, with Mr Boggs serving as secretary.

WORKING GROUP 1 is concerned with the development of an international system of designating refrigerants. The U.S., as secretariat, proposed for consideration the ASHRAE Standard 34-57, Designation of Refrigerants, approved as American Standard B79.1-1960. Since the basic numbering system included in this standard has already been used in many countries, it was proposed as the basis for an international system, and the members of the working group agreed to this proposal. It was decided, however, that the numbering system would be used only for the following groups of refrigerants: Halocarbon compounds, cyclic organic compounds, azeotropes, hydrocarbons, and unsaturated organic compounds. It is proposed that all other compounds used as refrigerants be designated by chemical name or formula. Because it is possible to have unlimited mixtures of basic refrigerants, it was agreed that there should be no numbering system applied to mixtures except for the azeotropic mixtures. Mixtures other

than azeotropic will be designated by reference to their qualitative and quantitative composition.

Although the basic American document indicates that no abbreviation of the word "refrigerant" is to be used, it was decided that for international work the capital letter "R" should be considered. For example, Refrigerant 12 would be indicated as R 12. This system of using the letter "R" for the abbreviation of the word "Refrigerant" is already in general use and it was agreed that the use of such an abbreviation would not cause any difficulty in trade designation.

SUBCOMMITTEE 6 is concerned with factory-assembled air-conditioning equipment. It was decided that although the scope of activities of the committee would cover all factory-assembled equipment, the first effort would be to develop a document covering methods of testing for rating room air conditioners.

It was understandable to the U.S. delegation that the other countries would be more interested in room air conditioners than in unitary equipment, since the development of air conditioning in these countries is far behind the status of the air-conditioning industry in the U.S.

A second document, to be developed in parallel with the testing document, will include recommendations on construction and safety. In addition, the subcommittee agreed that it would be necessary to include in the testing document standard rating conditions. The U.S. is the only country where rating standards are developed separately from testing standards so that for international application it is a necessity that rating conditions be included in the single document to be developed.

The ASHRAE Proposed Standard 37, Methods of Testing for Rating Unitary Air-Conditioning Equipment, was available to the subcommittee in draft form, as were ARI Standard 110-58 and NEMA Standard CN-1-1958 on Room Air Conditioners. These Standards were used as a basis for the development of an outline for the international proposal.

The subcommittee requested the secretariat (USA) to prepare a document covering recommendations for such characteristics as safety requirements and performance requirements of room air conditioners. It is to be noted, however, that capacity characteristics will not be included in this document. The U.S. was also requested to prepare, in liaison with subcommittee SC2, a list of suitable definitions to be included in proposals prepared by Subcommittee 6. Since this was the first working meeting of the subcommittee, the responsibility of the U.S. as secretariat will be to prepare draft proposals for discussion at the next meeting. The required procedures of ISO make it necessary that any such proposals be distributed to all members throughout the world several months prior to a meeting of the subcommittee. For this reason, these subcommittees meet at intervals of about one year.

Other countries that have already developed standards for room air conditioners are India and the United Kingdom. In both instances, their standards were based on ASHRAE and ARI standards. This indicates again how important it is for ASHRAE and related trade associations to develop adequate standards which may be considered by other countries or international groups as bases for similar standards.

SUBCOMMITTEE 3 is concerned with testing refrigerating systems. Belgium holds the secretariat. The basis of consideration for an international proposal on this subject was the document developed and approved by the International Institute of Refrigeration, titled "Recommendations for International Testing Code for Refrigerating Machines." This recommendation was also based on U.S. standards, although written in somewhat different form. Because of the international aspect of the work done by IIR, this subcommittee agreed that its document should be acceptable to both ISO and IIR.

One of the basic decisions was that a proposed international standard in this area should cover only the field testing of systems and possibly of compressors. Again, this approach was decided after comments of the U.S. delegation were presented and discussed.

SUBCOMMITTEE 4 is concerned with compressors. U.S. standards had been used as a basis for a proposal covering refrigerant compressors. These standards were ASHRAE Standard 23-59, Methods of Testing for Rating Refrigerant Compressors, and ARI Standard 515-60, Sealed Refrigerant Compressors and Condensing Units, 20 hp and Smaller. It was agreed that any international recommendations on this subject be concerned primarily with methods of factory-testing refrigerant compressors.

The first document developed by this subcommittee will cover single-stage compressors. Multi-stage compressors will be considered at a later date. Available documents concerning compressor testing were reviewed and it was agreed that the secretariat (United Kingdom) would distribute available reports on the subject so that comments from all delegations could be received and included in a new document for review prior to the next meeting of the subcommittee.

SUBCOMMITTEE 5 is concerned with household refrigerators. It used as a basis for its discussion American Standards B38.1-1955, Food Storage Volume and Shelf Area, and B38.2-1956, Testing Household Electric Refrigerators. There was considerable discussion concerning the specifications for cabinet construction and how this subject should be approached in an international recommendation. This was one of the problems of communication that the U.S. delegation encountered in attempting to indicate that such information in the U.S. would not be included in testing or rating standards.

Since its members represented countries that had tropical as well as temperate climates, the subcommittee decided to classify refrigerators in two groups—those for temperate climates, and those for tropical climates.

It was decided to submit the electrical problems allied with safety to the appropriate International Electrotechnical Commission (IEC) committee.

The suggestions of all delegations are to be considered by the secretariat and a revised proposal will be developed and sent by mail to the entire subcommittee for review.

These subcommittee meetings indicate the interest that exists throughout the world in the general field of refrigeration. They also indicate how in each instance the U.S. documents or procedures were considered as desirable bases for not only national but international proposals.

U.S. Acting on Extra-High Voltages

"AT LONG LAST the necessary first steps have been taken leading to standardization of transmission voltages in the EHV (extra-high voltage) range," comments *Electrical World* in an editorial March 27. "Most recent of these is the action of ASA Sectional Committee C92 in endorsing 345, 500, and 700 kilovolts as proposed American Standard voltages, subject to the confirmation of a letter ballot."

This was decided at a meeting of the committee January 26, 1961. A letter ballot on Proposed American Standard Preferred Voltage Ratings for High-Voltage A-C Systems is before the committee.

This development comes some eight years after the first 330/345-kv transmission lines were placed in operation in the United States and at a time when upwards of 2,600 circuit miles of such lines are in service, *Electrical World* explains. "However, industry approval of 500 kv as the next step above 345 kv would appear to be in the nick of time to avoid future confusion," the editorial declares. And it adds, "It is to be hoped that 345-, 500-, and 700-kv levels will be promptly endorsed by remaining standardization bodies as an American Standard and that they will find swift acceptance. Such prompt and decisive action will not only give new direction to the upward progress of power system development in this country but will solidify the wavering pattern of international voltage standardization around the world."

The international voltage standardization referred to is the work of IEC/TC 30, Extra-High Voltages, of the International Electrotechnical Commission. Basic standardization concerned with lower voltages is done by IEC/TC 8, Standard System Voltages, Currents and Frequencies. Dr C. F. Wagner, technical advisor for the U.S. National Committee of IEC on the work of both these committees, reported on the international work to Sectional Committee C92. A proposal for a series of nominal voltages very similar to the series being voted on by Sectional Committee C92 is now before the International Conference for Large Electrical Systems (CIGRE), which makes recommendations as the basis for work by IEC committees. However, there is considerable divergence in views on the part of members of IEC/TC 30.

E. M. Hunter, General Electric Company, chairman of Sectional Committee C92, reports that the only standard for voltage ratings over 100 volts in the U.S. is the EEI-NEMA report approved as American Standard Guide for Preferred Voltage Ratings for A-C Systems and Equipment, C84.1-1954. This covers voltages only through 230 kv. Recently, ASA Sectional Committee C92 was given responsibility for standardizing voltages above 230 kv.

In a report to Committee C92, Mr Hunter explains that studies have been made by U.S. power groups on 400, 460, and 500 kv. As indicated by the action of Committee C92, the recommendations of those who have studied 500 kv and 700 kv have been accepted by the committee as more realistic in view of future needs. Although the international situation is fully as complex as the national situation, the trend there, too, seems to be toward 500 kv. This would be aided by U.S. support of the 500-kv system.

Lower costs may be expected from this standardization, Mr Hunter reports. "A standard 500 kv which would eliminate 460 kv should reduce equipment and development expense, which should help to produce lower cost EHV terminal equipment," he says.

For Safe Use of

BENZENE, TOLUENE, XYLENE

by H. H. Schrenk, Ph. D.

THE CONSTANTLY GROWING STREAM of new products that flows from research, and is the result of our rapidly changing technology, is introducing potential hazards to those engaged in manufacturing and to the ultimate user of the product. As a result, possible benefits from our technologic advances depend on development and application of control measures. In the case of toxic chemicals, for example, controls are needed to prevent injurious or objectionable exposure to the chemical, not only of the workman, but also of the user in industry, on the farm, and in the home.

Toxicity is a physiological property of a substance, a measure of its ability to produce adverse effects when it reaches a susceptible site in the body. The amount of substance required to produce an effect varies widely with individual compounds, but in every instance a specific amount is necessary before an injurious effect is produced. Conversely, there is a limit below which no injurious effect is produced, regardless of toxicity. A hazardous exposure exists if the amount of toxic material is excessive, but a hazard can be prevented by keeping the amount below injurious levels. It is on this basic principle that hygienic standards can be established to provide safe environmental conditions in industry.

A safety factor is an essential consideration in establishing a standard. The magnitude of the safety factor may vary greatly depending on our knowledge of the biological action of the substance in question. If the potential hazard is great, if the margin between minor injury and serious injury is narrow, if the injury produced is irreversible, then a greater margin of safety is required. On the other hand, if the margin between the incipient effects and serious injury is large, if effects are readily reversible and good diagnostic procedures available to detect early changes, then the margin of safety can be small.

The American Standards Association, as a result of work by its Sectional Committee Z37, has recently issued revised American Standard maximal acceptable concentrations of benzene, toluene, and xylene.[1] These standards were based on a thorough evaluation of all available information from laboratory toxicological studies and field investigations of industrial applications. Consideration was given to such factors as odor, irritation, potential functional or organic changes, and metabolic pathways in the body. It was proposed that "the maximal acceptable concentration of benzene (benzol) shall be 25 parts per 1,000,000 parts of air by volume, corresponding to 0.08 mg (milligram) per liter at 25 C and 760 mm (millimeter) pressure, for exposures not exceeding a total of 8 hours per day with the understanding that variations in concentrations should fluctuate below this level." Similarly, the standard for toluene is 200 parts per 1,000,000 parts of air by volume corresponding to 0.752 mg per liter at 25 C and 760 mm pressure; and for xylene, 200 parts per 1,000,000 parts of air by volume corresponding to 0.868 mg per liter at 25 C and 760 mm.

The standard of 25 parts per million (ppm) for benzene was changed from the previous value of 100 ppm established in 1941 by the American Standard. This decrease in the standard was based primarily on the results of field studies in plants where benzene was being used. Improved diagnostic procedures and better medical surveillance of the workers were also influencing factors. No new evidence was made available to indicate that a change was needed in the standards for toluene and xylene approved by the American Standards Association in 1943 and 1948, respectively.

The main potential hazard from exposure to benzene, toluene, or xylene is through inhalation of the vapor. In acute poisoning resulting from exposure to high concentrations of vapor, the main effect is a narcotic action causing depression of the central nervous system, fatigue, headache, confusion, and dizzi-

Dr Schrenk, Managing Director, Industrial Hygiene Foundation, Pittsburgh, Pa., is chairman of Sectional Committee Z37, Allowable Concentrations of Toxic Dusts and Gases.

[1] American Standard Maximal Acceptable Concentration of Benzene, Z37.4-1960, $1.00; American Standard Maximal Acceptable Concentration of Xylene, Z37.10-1960, $1.00; American Standard Maximal Acceptable Concentration of Toluene, Z37.12-1960, $1.00.

ness, depending upon the magnitude of the exposure. The most significant hazard associated with exposure to benzene is chronic poisoning resulting from repeated exposures over an extended period of time. The primary action is on the bone marrow, resulting in a decrease in the white blood cells, platelets, and red blood cells. Exposure to toluene and xylene does not produce the chronic blood changes characteristic of benzene poisoning, and the hazard of chronic effects is not as great as for benzene. This is evident from the significant difference in the standards.

Irritation of the eyes, mucous membrane, and upper respiratory tract may occur on exposure to even low concentrations of toluene and xylene. Commercial grades of these materials vary in irritant properties and there is also a considerable range of variations in the response of individuals.

Benzene, toluene, and xylene are fat solvents and remove the protective fat of the skin. This may be followed by secondary infection; hence, contact with the skin should be avoided.

Industrial Applications

BENZENE, TOLUENE, AND XYLENE are used widely in industry as chemical raw materials, solvents, and motor fuel. They are used as a starting point in preparing dyes, explosives, and many intermediate substances which are also used in the synthesis of a multitude of organic compounds. They are excellent solvents for fats, resins, and gums. They are used extensively in the manufacture of lacquers, enamels, rubber products, protective clothing, artificial leather, and in paint and varnish removers. Owing to their many and diverse applications, it is obvious that the opportunity for exposure to these compounds is widely spread throughout industry, and there is a definite need for hygienic standards.

Use of Standard

TO BE EFFECTIVE, a hygienic standard must be used properly. Therefore, the American Standards defining acceptable concentrations contain supplemental information regarding the purpose, limitations, and interpretation of the standards, as well as pertinent physical-chemical data, so that the maximum benefits will be derived from their use.

A foreword in each standard explains the meaning of "maximal acceptable concentration." The type of data (laboratory tests on animals or human subjects and environmental and medical investigations in plants) and the criteria followed in establishing hygienic standards are discussed. The importance of proper interpretation of the standard as it relates to potential physiological effects and environmental data is stressed. For example, it is important to know whether the primary action of a compound results in irritation, narcosis, or functional or organic changes; also, whether brief peaks above the standard are of minor or major significance. A consideration of these factors is essential in determining the need, extent, and urgency of control measures. Other significant aspects also are emphasized.

Included in the physical-chemical data in the standards are the flash point and flammable limits of the respective compounds. These direct attention to the potential fire and explosion hazards. Also included is a description of the basic procedures which should be followed in collecting air samples. Commonly used analytical procedures are briefly described. Selected references are given to the more important publications which were reviewed and which provided the basic information in establishing the maximal acceptable concentration.

In the preparation of the standards, a preliminary draft was prepared by a subcommittee chosen because of specific knowledge of the compound in question. This draft was then thoroughly reviewed by the entire Z37 committee, and any corrections or changes deemed necessary were made. Hence, the final draft was the consensus of the best collective judgment of the entire committee based on available facts and experience. Since the standards are the product of judgment and current facts, they are subject to revision as new information becomes available.

The American Standard Maximal Allowable Concentration is much more than the simple expression of a figure. Other meaningful information is given on limitations, interpretations, and applicability which are necessary for proper utilization of the standard. It has been demonstrated that the most toxic substance can be used safely if standards are used, and used properly.

"THE TERM 'HYGIENIC STANDARD' is creeping into the language of occupational health," points out the magazine *Safety Standards*, November-December 1960.

"The 'hygienic standard' for an air contaminant may be defined as the highest concentration of the substance which, if breathed continuously throughout a 40-hour workweek, is unlikely to result in noticeable harmful effects either at the time of exposure or later," the magazine explains. "This definition is qualified by the terms 'unlikely' and 'noticeable.' Although such standards are basic to industrial hygiene, they can never be precise values marking what is safe and what is harmful."

"Through procedures of the American Standards Association, specific substances such as chromates, cyanides, and others, have been made the subject of individual American Standards," the article continues. "These are termed maximum allowable concentrations, commonly known as MAC's. However, the term hygienic standard is used in a sense similar to MAC or threshold limit in a recently proposed American Standard."

ASTM Committee Week

...Action on Standards

THIRTY-TWO TECHNICAL COMMITTEES of the American Society for Testing Materials met during the Society's Committee Week, January 30-February 3, at Cincinnati, Ohio. More than 1,200 engineers and scientists attended these committee meetings to work on materials standards. ASTM Committee D-2, Petroleum Products and Lubricants, also met in February immediately following Committee Week.

One of the features of Committee Week was a technical session on fire test methods, sponsored by ASTM Committee E-5, Fire Tests of Materials and Construction. ASTM standard methods of test for the establishment of fire ratings on construction materials are referred to in many building codes.

Some important actions taken by the ASTM committees are reported below.

Corrosion of Iron and Steel, A-5

TWO NEW specifications have been prepared for zinc-coated flat steel armor tape, and for copper-covered steel wire strand. A tolerance limit for the size of mesh in chain length fencing (A 392) is being considered.

Malleable-Iron Castings, A-7

AN APPENDIX that will provide a basis for elevated-temperature use of standard malleable iron is being added to ASTM Specification A 47, Malleable-Iron Castings.

A similar appendix will be added to Specification A 220 to provide for use of pearlitic malleable-iron castings at elevated temperatures.

Electrodeposited Metallic Coatings and Related Finishes, B-8

A SERIES of over 200 definitions relating to electroplating of metals has been prepared for publication.

A specification for multi-layer (duplex) electrodeposited nickel coatings permits standardization of these coatings for use on outdoor surfaces. Two systems are being considered for designating chromium-nickel-copper decorative coatings that will permit labeling to ensure consumer quality. One of these methods will be presented to the Society for publication.

Interlaboratory work is continuing to find the best dye for checking the sealing of anodic coating on aluminum alloys. A specification for anodic film thickness has been completed.

Interlaboratory data on the use of magnetic flux gages to measure electrodeposited film have been reported. These data will provide a basis for revising and enlarging existing thickness test methods.

Lime, C-7

A NEW subcommittee has started work on standards for agricultural liming materials, both lime and limestone.

It is expected that a cooperative test program on fly ash and natural pozzolans, based on a study of the physical characteristics of the materials, will lead to revisions in the existing specification for fly ash for use as a pozzolanic material with lime (C 379).

Refractories, C-8

INTERLABORATORY data have been compiled for establishing a new Group 30 insulating fire brick. Classification 155 will be revised to accommodate this new group, and Method C 210 will be revised to include a new heating schedule for it.

The Phelps consistency meter developed by the Refractories Institute Fellowship at Mellon Institute has been completed after extensive laboratory development. This apparatus will be incorporated in Methods C 268 and C 269.

A new classification covering mullite refractories has been developed based on hot-load test data. The classification will be presented for publication as tentative; however, further data are being solicited for refinement of the classification.

A new section has been organized to cover test furnaces and controls for the development of laboratory data on refractories. The first investigation will be directed toward reheat test furnaces covering temperatures above 3,000 F.

Gypsum, C-11

TEST METHODS for joint tape and cement for gypsum wallboard construction will be recommended to the Society.

The Methods of Testing Gypsum and Gypsum Products (C 26) will be divided into three separate standards on: chemical analysis of gypsum and gypsum products; physical testing of gypsum plasters and gypsum concrete; and physical testing of gypsum board products and gypsum partitions, tile, and block.

The committee is considering a proposal requiring that the paper surfacing of gypsum wallboard shall have a maximum flame spread of 15 when tested in accordance with the Method of Test for Surface Burning Characteristics of Building Materials (E 84).

Porcelain Enamel, C-22

A METHOD has been completed to determine the spalling resistance of porcelain enamel on aluminum.

This method is based on immersion of coated panels in an ammonium chloride solution. There has been no authenticated case in which specimens have passed this test and then failed in service.

A method to determine the thermal stress and strain produced by porcelain enamel in metal substrates is under development.

Petroleum Products and Lubricants, D-2

THE SIX-DAY meeting of Committee D-2 and its various technical subcommittees and research divisions was held in Philadelphia, February 5-10.

A new specification for liquefied petroleum gas was completed, and a new method of test was also developed for determining volatility of liquefied petroleum gases.

It was decided to subdivide the work of the present technical committee on lubricants into two separate technical committees, one to deal with automotive lubricants, and the other to deal with industrial lubricants.

Important changes were made in Method of Test for Tetraethyllead in Gasoline (D 526), including the addition of a new section on precision and procedures for analyzing tetraethyllead as well as tel and other compounds.

Coal and Coke, D-5

A NEW subcommittee on statistics will establish uniform practices within the committee for obtaining and analyzing data on precision of coal and coke test methods. The reactivated coal classification subcommittee will review existing standards on classification of coal, and will review and explore new developments in both domestic and foreign coal classification. Special attention will be given to the evaluation of coal for various uses on the basis of its chemical, petrographic, and physical characteristics.

Proposed standard procedures are being prepared for measuring the expansion properties of heated coals by the movable-wall oven and the sole-heated oven.

Bituminous Materials for Roofing, Waterproofing, and Related Building or Industrial Uses, D-8

THE SUSCEPTIBILITY of asphalt to temperature change is defined and measured by a new method prepared by the Subcommittee on Rheological Properties.

Two proposed specifications for bituminized-fiber drain and sewer pipe will be submitted to the Society. They cover laminated-wall and homogeneous bituminized-fiber drain and sewer pipe, respectively, the latter also including fittings.

Development of test methods for determining various properties of industrial pitches is progressing. The use of prefabricated asphalt material as a water-impervious layer, lining, or membrane for use in waterproofing reservoirs has led to consideration by the committee of a proposed specification for preformed asphalt.

Rubber and Rubber-Like Materials, D-11

A TECHNICAL paper on "Interlaboratory Studies of Test Methods," presented by John Mandel, National Bureau of Standards, was, in effect, an introduction to work being undertaken by the committee. This concerns development of a recommended practice on the planning of interlaboratory test programs for rubber.

A paper on "The Need for a Standard Method for Oil Aging of O-rings" was presented by H. G. Gillett of Precision Rubber Products Corporation. The discussion that followed resulted in appointment of a task group to develop a method for immersion testing of O-rings. This group will also consider the preparation of specifications for O-rings.

A new method of test for specific gravity of rubber chemicals was approved for publication. The committee will also develop a companion method for determining the apparent specific gravity of rubber chemicals.

The Subcommittee on Life Tests for Rubber Products presented a new method of test for tubular oven aging of elastomers and plastics. Requirements for the oven will be submitted to Committee E-1 on Methods of Testing for review.

Wax Polishes and Related Materials, D-21

PROPOSED METHODS of test for measuring the static coefficient of friction of waxed floor surfaces are being submitted for publication as tentative. Considerable interlaboratory work by several cooperating laboratories has established the background data.

New methods in preparation cover the determination of silicons in solvent-type wax polishes. A new recommended practice for maintaining a wax surface on vinyl asbestos tile has been developed. The committee hopes to develop recommended practices for maintaining wax polishes on a variety of floor surfaces. One for asphalt tile was recently completed and others are in preparation.

Methods of Atmospheric Sampling and Analysis, D-22

M. D. THOMAS of the University of California, vice-chairman of D-22, pointed out that sulfur dioxide can exist in the atmosphere as such, but when sulfur trioxide is present it is in the form of sulfuric acid. He urged the committee to place more emphasis on measurements of sulfuric acid content in the atmosphere so that a backlog of information can be built up for correlation with observed physiological effects. Better analytical methods and recorders are needed to measure the sulfuric acid content. The committee agreed to consider a draft method for sulfuric acid.

The committee has prepared a rather extensive list of units and conversion factors used in atmospheric analysis and will recommend its publication.

A proposed new tentative method for particulate matter in the atmosphere using the principle of light scattering will be recommended to the Society.

Halogenated Organic Solvents, D-26

THE COMMITTEE expects to complete a manual on vapor degreasing for publication within the year. The manual will cover major considerations involving vapor degreasing equipment, handling and use of solvents, and general aspects of vapor degreasing.

The committee is developing a specification for trichloroethylene for cleaning out empty fuel systems, particularly those which contain liquid oxygen—a problem in the missile industry.

Other uses of solvents are also being considered, particularly cold cleaning.

Methods of Testing, E-1

THE INCREASING use of materials at high temperatures in missile and nuclear power applications has made new demands on thermocouples. Also, an increasing number of ASTM methods are specifying thermocouples for temperature measurement. The requirements now specified have been reviewed. The manual will present up-to-date information on the newer thermocouple materials as well as standard thermocouples. Standard methods are under development for the comparison calibration of thermocouples and for testing thermocouple element materials by comparison to a secondary standard of similar composition.

New definitions in Procedures Relating to Conditioning and Weathering (E 41) and Specifications for Standard Atmospheres for Conditioning and Testing Materials (E 171) have been completed. It is hoped that these definitions and standard conditions for laboratory testing will be used by all other ASTM committees. The specifications for enclosures and servicing units other than ovens for tests above and below room temperature (D 1197) were approved.

The Subcommittee on Calibration of Mechanical Testing Machines and Apparatus is working on the problem of developing a method for verification of testing machines at rapid rates of straining.

The Subcommittee on Elastic Properties and Definitions on Mechanical Testing is planning further changes in the Definitions of Terms Relating to Methods of Mechanical Testing (E 6). These will standardize mechanical testing terms common to metals, plastics, and other nonmetallic materials in order to avoid conflicting practices.

Radioisotopes and Radiation Effects, E-10

THE FIRST TWO in a series of proposed methods dealing with tests for the purity of radioisotopes and assay procedures have been drafted. These are "Method for General Procedures for Radioisotope Analysis" and "Method for Analysis of Phosphorus-32." The first contains a number of commonly used techniques of radioactive measurement and will serve as a general reference for other methods using such techniques.

Two recommended practices intended to increase the usefulness of data on the effects of radiation on metals are being considered for publication. One is for determining the effect of high-energy radiation on the tensile and impact properties of metals, and the other is for surveillance tests on structural materials in nuclear reactors.

To help implement these two recommended practices, United States Steel Corporation has offered to provide standard reference steels to be used as correlation monitors in research and surveillance programs. By irradiating this reference material in different reactors, the influence of variations in neutron dose rate and spectrum can be valuated.

In the important area of dosimetry, three documents are being reviewed for publication in 1961. These include a recommended practice for measuring neutron flux environment for reactor-irradiated specimens, a method of test for fast neutron integrated flux by radioactivation of nickel, and a method for the radiochemical determination of cesium-137 in aqueous solutions.

A task force of Subcommittee III on Tracer Applications will work actively toward greater knowledge of radioisotopes in the testing of materials. W. S. Lyon, Oak Ridge National Laboratory, Oak Ridge, Tennessee, is chairman of the group and will welcome correspondence with anyone interested in this activity.

The Inorganic Materials Task Force plans to prepare recommended practices for determining radiation-induced changes in inorganic materials. Recommended practices will be developed for determining the high-energy radiation-induced changes in thermal, impact, and electrostatic sensitivities of inorganic oxidants and fuels; electrical properties and catalytic activity of surfaces of inorganic materials; stability of inorganic surface coatings; reactivity of inorganic materials which undergo induction periods prior to decomposition; displacement defects in inorganic solids (radiation annealing).

Analysis and Testing of Industrial Chemicals, E-15

BUTYL LITHIUM is a glamour chemical, used in the manufacture of synthetic "natural" rubber. Because of its promising future, producers have increased their capacity this year to 350,000 lb per year in the face of 1960 sales of only 20,000 lb. Due to its instability and its high cost, there are special problems of analysis and understanding between buyer and seller.

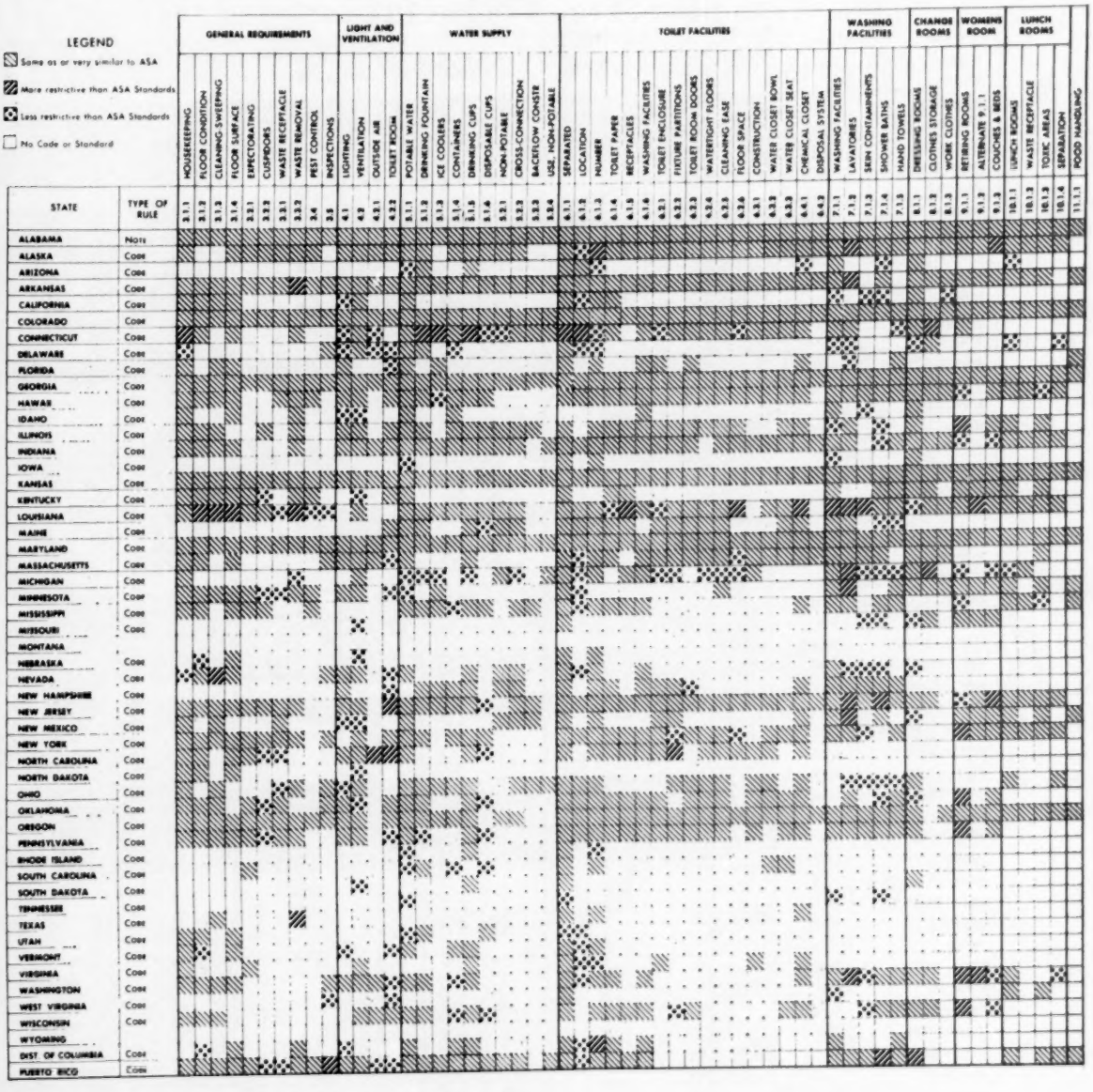
A task group on butyl lithium has been authorized to bring producers and consumers together in setting standards for analysis of the chemical.

A task group will also develop analytical standardization relating to organic peroxides. The committee has objectives beyond simple analysis. The group will also be concerned with methods for detecting extremely low levels of peroxides, where peroxide formation in certain compounds is the forerunner of chemical deterioration of the materials. Also, because of relative instability of organic peroxides used widely for catalysts in the rubber and plastics industries, the committee will be concerned with criteria for safe handling.

COMPARISON OF STATE SAFETY CODES WITH AMERICAN STANDARDS

HOW FAR DO STATE SAFETY CODES promulgated by state regulatory authorities, and American Standard safety specifications prepared by committees representing all groups concerned, agree with each other? This is a question that concerns industry as well as labor, since differing standards cause trouble to manufacturers who sell industrial equipment to a nationwide market.

Recognizing the importance of the answer to this question, the Bureau of Labor Standards, U.S. Department of Labor, recently made a survey of state codes for mechanical power-transmission apparatus in comparison with the American Standard Safety Code for Mechanical Power-Transmission Apparatus, B15.1-1958. It also made a survey of state industrial sanitation codes in comparison with the American Standard for Industrial Sanitation, Z4.1-1955. The results are shown in the accompanying tables.

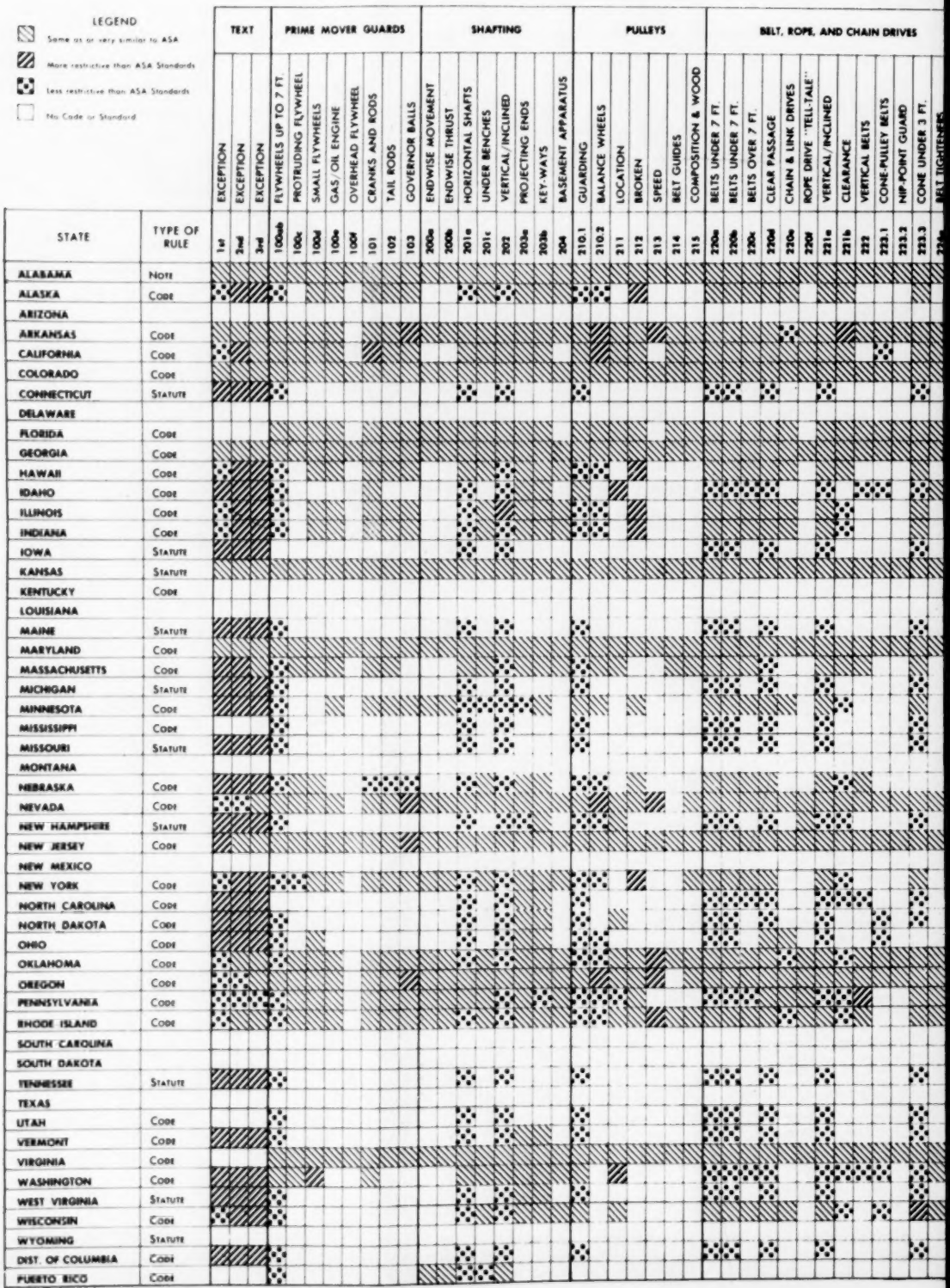


Definition: CODE—A provision promulgated by a state having the force and effect of law. "Code" also includes statutory provisions enacted by state legislation.

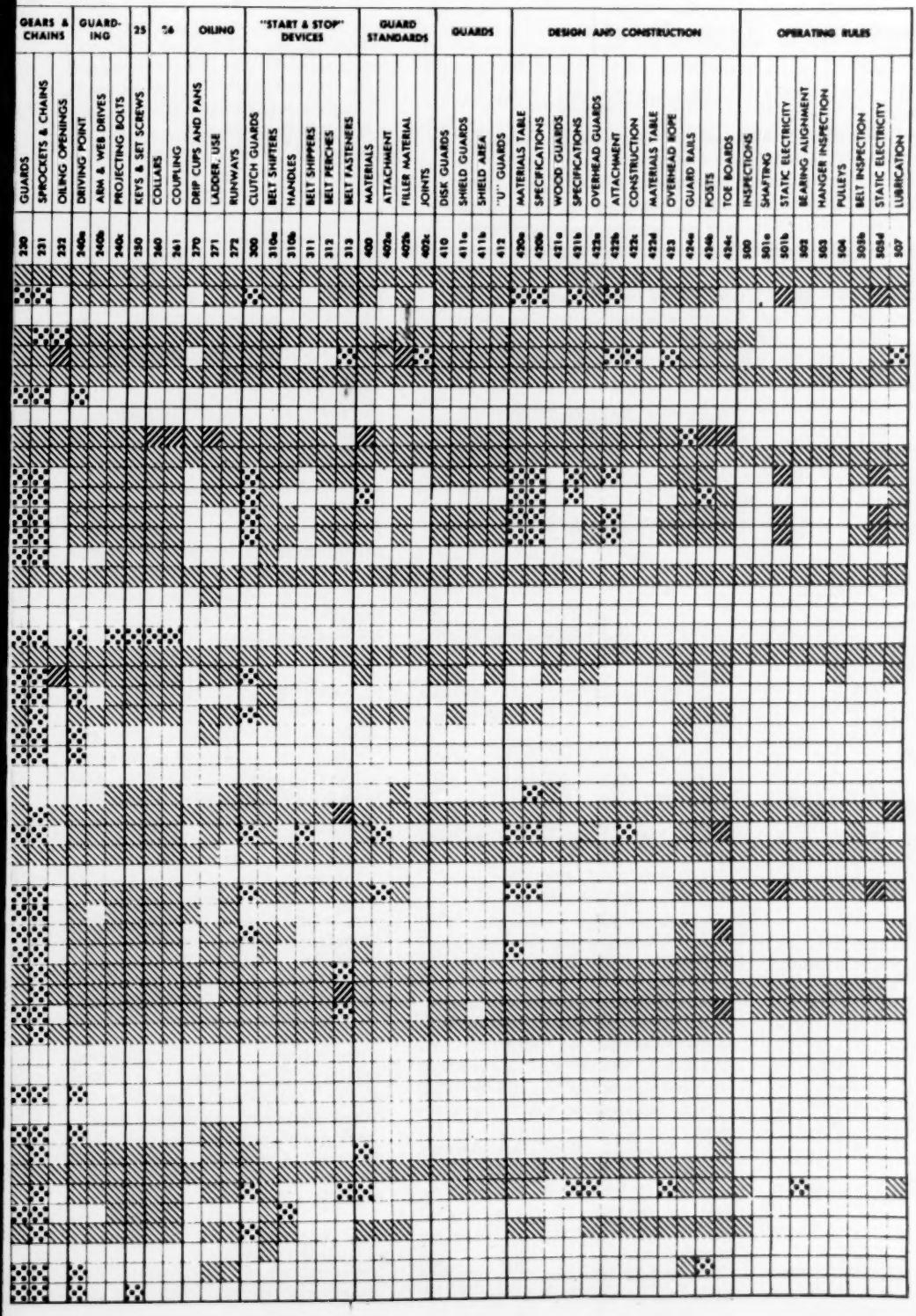
NOTE: Recommends ASA [American] Standard.

SANITATION Z4.1-1955

MECHANICAL POWER-TRANSMISSION APPARATUS B15.1-1958



Definition: CODE—A provision promulgated by a state having the force and effect of law. "Code" also includes statutory provisions enacted by state legislation. NOTE—Recommends ASA [American] Standard.



CROSS-INDEXING

Industry and Military Specifications and Standards

Reported by W. L. HEALY

In the February, March, and April issues of *The Magazine of Standards*, under the above heading, industry has been encouraged to cooperate with the Bureau of Ships in its current project of indexing comparable industry and military specifications. Comment by industry is encouraged on the basis that many companies' own evaluation between industry and government specifications will constitute an invaluable supplement to the work being done by the American Standards Association under its current contract with the Bureau of Ships. This work can be accelerated thereby, with mutually beneficial results. Since this index will be made available to industry at large, much expense in both time and money will be saved by the individual companies when unnecessary and repetitive work is eliminated.

It is again suggested that when any company becomes aware of an instance where an adequate and comparable industry standard or specification, such as AIA, ASTM, NEMA, AISI, or any others, or an American Standard, can be substituted for a military document, it be brought to the attention of W. L. Healy, staff engineer, American Standards Association, 10 East Fortieth Street, New York 16, N. Y.

The following are some recent examples of work performed under the contract:

(1) MIL-A-19005a, 9/23/1955—ALUMINUM ALLOY BARS, RODS, AND STRUCTURAL AND SPECIAL SHAPED SECTIONS—EXTRUDED, 5083 (K-183)

ASTM B 221-60T, temper H112, is equivalent to MIL-A-19005a and could be used for procurement. This specification is under the jurisdiction of ASTM Committee B-7, Subcommittee III. ASME Boiler and Pressure Vessel Code Specification No. SB-221 is based on this specification. The chemical and physical properties are identical. Any specific requirements in regard to packaging, sampling, and inspection should be specified in the ordering data.

(2) MIL-S-869c, 5/9/1957—STEEL BARS, BILLETS, AND FORGINGS—ALLOY NITRIDING APPLICATION

ASTM A 355-57T, classes I, II, III, and IV, are equivalent to the military specification, classes I, II, III, and IV, and could be used for procurement. The chemical properties are equivalent, except that the military specification requires 0.50% nickel in classes B and D, while the ASTM has no nickel requirement.

The ASTM specification does not include the following:

(1) Condition 4 (normalized and tempered)

(2) Finish, Type II (pickeled or blast cleaned)

(3) Finish, Type IV (cold drawn)

(4) Table of mechanical properties, but requires hardness ranges for quenched and tempered material only which differ somewhat from the military specification

(5) The military specification provides a nitriding test covering hardness and depth of case

(6) Macroscopic etch tests are required by military specifications on billets, bars, and forgings

(7) Military specification requires a nitriding test covering hardness and depth of case

(8) ASTM A 355-57T does not cover forgings or billets

Any other specific requirements in regard to packaging, sampling, or inspection should be specified in the ordering data.

(3) MIL-B-16522, 12/15/1945—BRONZE, ALUMINUM-MANGANESE; CASTINGS

ASTM B 22-60T, alloy E, is equivalent to military specification MIL-B-16522, class 1, and could be used for procurement.

ASTM B 147-52, alloy C and alloy 8B, are equivalent to MIL-B-16522, class I and class II, respectively, and could be used for procurement. The mechanical and physical properties requirements are comparable.

Any specific requirements in regard to packaging, sampling, or inspection should be specified in the data for ordering.

(4) MIL-A-19070A, 10/7/1955—ALUMINUM ALLOY PLATES AND SHEETS, 5086 (K186)

ASTM B 209-60T, alloy 5086, tempers O, H32, H34, H36, and H112 are equivalent to military specification MIL-A-19070A same tempers, and could be used for procurement. The chemical properties requirements are equivalent except that the ASTM specification permits a range of 0.05-0.25% chromium and 0.5% titanium, while the military specification requires no titanium and permits 0.25% max chromium.

The mechanical properties requirements are equivalent.

Mechanical properties and tolerances for sizes and thicknesses of plates or sheets not specifically covered should be specified in the ordering data.

Any specific requirements in regard to sampling, packaging, or inspection should be specified in the ordering data.

(5) MIL-A-17358B, 6/28/1954—ALUMINUM ALLOY PLATES, 5083 (K-183)

ASTM B209-60T, tempers O and H113, are equivalent to MIL-A-17358B same tempers and could be used for procurement.

The chemical and physical properties requirements are comparable.

Mechanical properties and tolerances for sizes or thickness of plates not specifically covered by this specification should be specified in the ordering data.

All special requirements, particularly in regard to sampling, packaging, and inspection, should be specified in the ordering data.

(6) MIL-S-20137A, 4/15/1950—STEEL BAR, ROLLED, HEAT TREATED (SHAFTING)

ASTM A 108-58T, cold-finished carbon steel bars and shafting steels, grades 1020, 1022, 1025, 1030, 1035, 1040, 1045, and 1050 are similar steels to those described in MIL-S-20137A. ASTM A 108-58T could be substituted for the military specification in procurement.

The ingots from which the bars are rolled should be manufactured by the open hearth, crucible, or electric furnace process. No Bessemer steels are permitted. The rolled bars should be either annealed and furnace-cooled, normalized and drawn, or stress relief annealed at a temperature of not less than 100 F, as manufacturer desires to provide steel with a tensile strength min 75,000 psi. yield min 35,000 psi, elongation in 2 in. of 22%, and reduction area of 0.40% min. Macroscopic examination required.

All special requirements, particularly in regard to sampling, packaging, and inspection, should be specified in the ordering data.

(7) MIL-A-15153A, 2/21/1952—ALUMINUM BASE ALLOY DIE CASTINGS

ASTM B 85-60, alloys S12B, S5C, SC84B, G8A, SG100A, SC84A are comparable to MIL-A-15153A, alloys classes

1, 3, 5, 7, 9, and 10, respectively, and could be used for procurement.

The chemical requirements vary slightly as follows:

ASTM alloys S12B, S5C, SG100A and the military specification classes 1, 3, and 9 are identical, except that the military specification permits 9.3% manganese and 0.1% tin, while the industry specification permits 0.35% manganese and 0.15% tin.

Military specification Class 5 permits a copper range of 3.5-4.5%, silicon 4.5-5.5%, zinc 1.0%, tin 0.3%, while the comparable ASTM alloy SC84B permits a copper range of 3.0-4.0%, silicon 7.5-9.5%, zinc 3.0%, and tin 0.35%.

Military specification Class 7 permits 0.2% copper, 0.3% silicon, 0.5% manganese, 0.1% tin, 0.1% zinc, and 0.1% nickel, while the comparable ASTM alloy G8A permits 0.25% copper, 0.35% silicon, 0.15% tin, 0.15% zinc, 0.35% manganese, and 0.15% nickel.

Military specification Class 10 permits 0.1% zinc and 0.3% tin, while the ASTM alloy SC84A allows 0.3% zinc and 0.35% tin.

The mechanical properties requirements have some slight differences as follows:

Military specification Class 1 has a tensile of 37,000 psi, yield strength of 19,000 psi, and elongation of 1.8% min. in 2 in. The ASTM alloy S12B has tensile of 43,000 psi, yield of 21,000 psi, and elongation of 2.5% min.

Military specification Class 3 has a tensile of 30,000 psi, a yield of 16,000 psi, and elongation of 5.0% min, while the comparable ASTM alloy S5C has a tensile of 33,000 psi, a yield of 14,000 psi, and elongation of 9.0% min.

Military specification Class 5 requires a tensile of 38,000 psi, yield of 22,000 psi, and elongation of 2.5% min. The ASTM alloy SC84B has a tensile of 46,000 psi, yield of 23,000 psi, and elongation of 2.5% min.

Military specification Class 7 has a tensile of 45,000 psi, yield of 27,000 psi, and elongation of 8.0% min, while the comparable ASTM alloy G8A has tensile of 45,000 psi, yield of 28,000 psi, and elongation of 5.0% min.

Military specification Class 9 has a tensile of 43,000 psi, yield of 23,000 psi, and elongation of 5.0% min, while the comparable ASTM alloy SG100A requires a tensile of 46,000 psi, yield of 24,000 psi and elongation of 3.5% min.

Military specification Class 10 requires a tensile of 41,000 psi, yield of 21,000 psi, and elongation of 3.0% min. The comparable ASTM alloy SC84A requires a tensile of 47,000 psi, yield of 23,000 psi, and elongation of 3.5% min.

Any specific requirements, particularly in regard to packaging, sampling, and inspection, should be specified in the ordering data.

(8) QQ-A-596B, 6/26/1950—ALUMINUM ALLOY PERMANENT AND SEMI-PERMANENT MOLD CASTINGS

ASTM B108-59T alloys CS72A, CG100A, CS42A, SC64A, SC51A, S5A, SG70A, SN122A, SC122A, SC64B, ZC81B, ZG32A, ZG42A are comparable to QQ-A-596b alloys, classes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, respectively. While the chemical properties requirements are relatively equivalent, there are some minor differences.

Federal specification Class 1 permits 0.07% magnesium and 0.50% manganese, while the ASTM permits 0.10% and 0.6% max, respectively.

Federal specification Class 2 requires 0.30% nickel and 0.50% manganese, while the ASTM specification alloy CG100A allows 0.50% and 0.80%, respectively.

Federal specification Class 4 permits 0.30% zinc, while ASTM alloy CS42A permits 0.5%.

Federal specification Class 5 permits silicon range 5.0-6.0% and requires no nickel; the ASTM alloy SC64A permits a silicon range of 5.5-7.0% and 0.35% nickel.

Federal specification Class 9 permits 0.9% iron, 0.10% manganese, and 0.10% zinc, and the ASTM alloy SN122A allows 1.3% iron, 0.35% manganese, and 0.35% zinc.

Federal specification Class 10 allows 0.40% zinc, while the ASTM alloy SC122A permits 1.0% zinc.

Federal specification Class 11 permits a copper range of 3.3-4.3% and 0.30% nickel, while the ASTM alloy SC84B allows copper range 3.5-4.5% and 0.35% nickel.

Federal specification Class 12 has silicon max 0.30%, and the ASTM alloy ZG81B allows a max of 0.12% silicon.

Federal specification Class 13 has max of 4.3% zinc, and the ASTM alloy ZG32A allows a max of 3.3%.

Federal specification Class 14 and ASTM alloy ZG42A have identical chemical contents.

Federal specification Class 15 (SAE alloy 750) is not listed in the above-mentioned ASTM specification.

The above aluminum alloys are used in a variety of specifications. ASTM B108-59T lists 23 alloys. QQ-A-596b lists 15 different alloys. ASTM specification B108 contains all the alloys of Federal Specification QQ-A-596b except class 15. Class 15 is a bearing alloy. It is believed that alloy 15 could be contained in B108.

(9) MIL-C-15345D, 4/12/1956—CASTINGS, NONFERROUS, CENTRIFUGAL

ASTM B145-52 alloy 4A is equivalent to MIL-C-15345D, alloy 1, and could be used for procurement. The chemical and physical properties requirements are comparable.

ASTM B146-52 alloy 6C is equivalent to military specification, alloy 3, and could be used for procurement. The chemical and physical properties are comparable.

ASTM B147-52 alloys 8A, 8B, and 8C are equivalent to military specification alloys 4, 5, and 6, and could be used for procurement. The mechanical properties of these alloys are comparable. The chemical properties differ slightly as follows:

(1) MIL-C-15345D, alloy 4, does not require any nickel, while the ASTM, alloy 8A, permits 0.50% nickel.

(2) MIL-C-15345D, alloy 5, has a copper range of 66.0-68.0% and manganese range of 3.0-5.0%, while the ASTM alloy 8B has a copper range of 60.0-68.0% and manganese range of 2.5-5.0%.

(3) The chemical properties requirements for MIL-C-15345D, alloy 6, and ASTM alloy 8C, are the same.

ASTM B143-52, alloys 1B, 2A, and 2B are equivalent to MIL-C-15345D, alloys 8, 9, and 10, and could be used for procurement.

The chemical properties requirements for MIL-C-15345D, alloys 8 and 9, are the same as ASTM B143-52, alloys 1B and 2A. MIL-C-15345D, alloy 10, and ASTM B143-52, alloy 2B, are equivalent, except that the ASTM permits a minimum of 2.5% zinc and 0.05% phosphorus, where the military specification, alloy 10, has a minimum of 3.0% and requires 0.50% phosphorus. The physical properties requirements are equivalent.

ASTM B144-52, alloy 3B, is similar to MIL-C-15345D, alloy 12, and could be used for procurement. The chemical properties requirements are the same, except that the ASTM alloy 3B requires 0.35% antimony, while the military specification has no requirement. The physical properties requirements are the same.

ASTM B148-52, alloys 9C and 9D, are equivalent to MIL-C-15345D, alloys 13 and 14, and could be used for procurement. The chemical properties requirements are comparable, except that the military specification permits a minimum of 9.5% aluminum in alloy 4, while the ASTM alloy 9D permits a minimum of 10.0%.

The mechanical properties (heat treated) for comparable alloys 9C and 13 have a tensile of 90,000 psi, yield 45,000 psi, and elongation in 2 in. of 6.0% min. Alloys 9D and 14 each have a tensile of 110,000 psi, yield of 60,000 psi, and elongation of 5.0% min. The ASTM specification does not list MIL-C-15345D, alloys 2, 7, 11, 16, 17, 18, 19, 20, 21, 22, and 23.

Any special requirements, particularly in regard to sampling, packaging, or inspection, should be specified in the ordering data.

Are These Cases Work Injuries?

This is the thirty-ninth installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations. Reprints of each double page of cases published in THE MAGAZINE OF STANDARDS can be obtained in quantity from the American Standards Association at $1.50 per 50 copies.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-800. An index to Cases 400-800 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-800, with the index, are now available from ASA at $2.50. Discounts for quantity orders may be obtained on request.

CASE 838 (2.3.1.2)

A machinist was polishing a 3/4-in. shaft, set up in a 10-in. engine lathe, when the revolving shaft seized the emery cloth, and his left index finger was caught between the cloth and the shaft. There was only slight pain in the distal phalange of the left index finger, so he continued work and did not report the incident. A few hours later the man became aware of his inability to extend this distal phalange, but there was no change in flexion. Five days later he reported the incident to his foreman who sent him immediately to the dispensary for treatment.

The plant physician saw the employee at this time, and made the diagnosis of avulsion of extensor tendon from distal phalange of left index finger. The man was sent to an orthopedic surgeon who concurred with the diagnosis, and explained to him that surgery offered only a 50-50 chance of recovery. The employee declined surgery and lost no time from work. He had an approximate 40-degree drop of the distal phalange, but this in no way affected the man's working ability or production.

Decision: This case should be considered a permanent partial disability since there was loss of use of the finger, even though this did not affect the employee's ability to work. The time charge would be a percentage of the 100 days charge for complete loss of use of the tip of the finger, the percent being equal to the percent loss of use.

CASE 839 (1.2.4)

An electrician, standing on a low step ladder (2½ ft) with his back against the elevator side, raised both arms overhead to raise a loose-fitting hatch door on top of the elevator. As he extended his arms, he felt a pain in his back which he immediately reported to his supervisor who took him to the first aid station. Since the man's regular family physician was out of town, the company suggested that he visit a chiropractor, which he did. There he was given chiropractic treatment, and x-rays were taken before the man returned to the mill.

The employee failed to report for work the following day (Tuesday) until noon, because of a morning appointment with the chiropractor. On Wednesday he again failed to report at his scheduled starting time because, although he felt he could do the work, the chiropractor was not sure of the x-rays taken and wanted more time to study them. The company advised the electrician to see a medical doctor, which he did. After an examination and x-rays, the medical doctor said the injury was nothing more than a muscle strain, the man could return to work, and he could probably have returned to work the previous day (Wednesday) had proper reading of the x-rays been made by the chiropractor.

The chiropractor had not kept the employee from work on Wednesday to take additional x-rays, but merely to look at those taken on Monday, again to determine the extent of injury, if any. He said had he been sure of his reading of the x-rays on Monday, the employee could have returned to work without the loss of time on Wednesday.

Decision: The injury should be considered a temporary total disability and should be included in the work injury rates in accordance with the actual number of days lost on the basis that a work-connected injury had occurred, and in the subsequent examination and evaluation of the injury a full day was lost from work. This case is similar to Case No. 428.

CASE 840 [1.5 (b)]

An employee was borrowed from one department and assigned the job of installing a shelf in the commercial department office. He was not given instructions as to how this job was to be completed, since he had had many years of experience in woodwork and it was felt that he was qualified to do the job. The manner in which the shelf was installed necessitated the use of three wood blocks for the shelf support. The employee had three blocks but they were too thick, so he decided to take them home with him during his lunch hour and plane them down on a planer and joiner.

He left the company premises in his personal car, went home, ate his lunch, and then proceeded to the basement of his home to use the joiner for the purpose of planing down the blocks. The man's lunch hour was from 12 noon to 1 o'clock. At approximately 12:45, while he was planing one of the blocks, it was thrown from his left hand, and his left index finger went into the planer blade, cutting off the finger at the first joint.

The employee was not paid for doing this work on his own time, and his supervisor felt that had the man used good judgment, he would have procured these blocks from a local lumber company instead of trying to do this in his own workshop.

Decision: The injury should be considered a work injury and should be included in the work injury rates in accordance with the time charges regularly established. This employee was attempting to carry out his work assignment to the best of his ability, and his injury must, therefore, be considered as having been in the course of employment. Although his actions may have been unwise, the man was trying to act in the best interests of his employer at the time of his injury.

CASE 841 (5.2)

At 2:30 P.M. four employees lifted a 6-inch pipe about 20 ft long, weighing approximately 400 lb. At 3:00 o'clock one of these employees felt a pain in his back. This employee had not had any previous difficulty with his back. He lost 4 days from work in accordance with the doctor's orders. The doctor treating the case gave an opinion that this employee's back pain had been a result of lifting the pipe.

Decision: This injury should be included in the work injury rates. This decision was based upon the incident of handling the pipe, and the statement from the physician that lifting the pipe resulted in this injury.

CASE 842 (5.14)

Employee sprained his ankle. Treatment of this injury was by means of adhesive tape used over a period of approximately 2 weeks. The employee eventually had an irritated condition of the skin of his leg which developed from wearing the adhesive tape and which resulted in lost time from work. The company asked if this case should be excluded from the records on the basis of paragraph 5.14.

Decision: This case should be considered a temporary total disability and included in the work injury rates in accordance with the ultimate extent of disability. The members of the committee did not believe that a person's reaction to the use of adhesive tape could be considered as falling within the limitations of paragraph 5.14 of the standard. Some of the members commented that they did not believe it was the intent of paragraph 5.14 to exclude the effect of any and all complications which might arise during treatment of an injury. The intent was solely to avoid the counting of lost time which might seem to discourage the use of precautionary treatment. For example, this might include the use of antitoxins, vaccines, and drugs which might not precisely be called for in the standard management and procedure for the injury in question, but which might represent desirable practice, in the sense that they would provide abundance of caution to avoid possible, but not immediately present, unfavorable development.

Inasmuch as the rule was intended to express a limited concept, it necessarily must be given a literal and strict interpretation. There appears to be little possibility for misinterpretation or misunderstanding as to the terms "antitoxins" and "vaccines." The term "drugs," however, offers some possiblity for misinterpretation—some reasoning would extend this term to include all substances, materials, and procedures used in the treatment of an injury. Such reasoning seems indefensible. Certainly, it would seem farfetched reasoning to consider the term "drugs" as including mechanical devices which were neither expected nor intended to have any effect on the body chemistry or biological activity. The members believed that the application of adhesive tape to give physical support to a muscle or tendon did not fall within the meaning of the term "drugs."

CASE 843 [A1.6 (b)]

This was a specific request for an interpretation of the last sentence in paragraph A1.6 (b), which reads:

"If an employee drove his own car or a company-furnished car to such a place of work, or if he rode with another person in this person's car or a company-furnished car, A1.6(a) would apply."

A private dirt road served several small coal mines. The road was graded along the contour of the coal bed and was used to facilitate the delivery of supplies to the mines and as a travel way for employees. Four employees completed their shift and returned to the surface at 3:30 P.M. A small company truck equipped with a canvas top was used to transport employees along the mine supply road to a point off the mine property where private automobiles were parked. As the truck traveled along this road at a point several hundred feet from the mine, the truck was struck suddenly and without warning by the upper trunk and branches of a falling tree. Some of the branches penetrated the canvas top of the truck, and one struck the victim on the head, fracturing his skull, and resulting in a fatality. None of the other men in the jeep were injured.

It appeared that employees of another mine were felling this tree in order to obtain mine posts. Due to the contour of the land the two employees felling the tree could not see the supply highway and did not know the truck was approaching.

Decision: This should be considered an industrial fatality and included in the work injury rates. It was believed that this injury arose out of and in the course of employment and, therefore, should be included in the rates. The committee suggested that in the last sentence of paragraph A1.6 (b) the term "company-furnished car" referred to some vehicle which had been, more or less, permanently assigned to an employee for his own use on company business, such as a salesman's car, and did not apply to this case.

CASE 844 [A1.6 (d)]

In preparing for a company meeting on Saturday morning, several company officials from various parts of the country arrived, about 5:00 P.M. on the previous evening, at the city where the meeting was to be held. The local manager met the visiting managers at the airport. They had dinner together and passed the evening together in a private dining room. About 11:00 P.M., the local manager, driving his own private automobile, took three of the other managers to the hotel where they were staying. While they were driving to the hotel, an automobile proceeding in the opposite direction went out of control, jumped the center island, and struck the car in which the employees were riding. This happened about 11:30 P.M. It resulted in one fatality and three serious injuries. There was a question as to whether this should be included in the injury rates.

Decision: All of the injuries and the fatality should be considered as work injuries and included in the rates. Without evidence to the contrary, it was assumed that the plant manager had some business benefits in mind when he invited the small group to attend dinner and that these employees were attending a company function at the time of the injury. This was quite similar to case 627.

CASE 845 (5.2)

This was a request for an interpretation of the word "incident" in paragraph 5.2 (a). A laborer was engaged in removing small branches from the side of the road. He apparently was picking up a small branch weighing about 10 to 15 lb. When he straightened up, he felt a slight pain in the lumbar region of his back. He did not report it to the foreman because he felt that it would be gone in a few hours. The next morning his back was too sore to permit him to report to work. He lost three days from work.

Decision: The committee agreed that the case, as cited, might very well be considered as meeting the requirements of paragraph 5.2 (a) of the standard. The members called attention to the fact that, in addition to 5.2 (a), the requirements of paragraph 5.2 (b) also have to be met before a case is actually counted in the rates.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies, please refer to the number following the title.

614.8 ACCIDENT PREVENTION, PROTECTION, SAFETY

Austria (ÖNORM)

Safety glasses and shields for protection against mechanical and chemical hazards — ÖNORM F 5302

Germany (DNA)

Goggle glasses — DIN 4642

USSR

X-ray protective glasses — GOST 9541-60

614.84 FIRE BRIGADE

Austria (ÖNORM)

Classification of flammable materials — ÖNORM F 1003

Czechoslovakia (CSN)

Tanks for transportation of fire extinguisher charges — CSN 38 0190

Germany (DNA)

Mounting for fire-fighting flood lights — DIN 14640

India (ISI)

30-34 m (or 100-110 ft) mechanically operated turntable ladder for fire brigade use — IS:932-1960

615.4 PRACTICAL PHARMACY. MEDICINE. INSTRUMENTS. HOSPITAL EQUIPMENT

Germany (DNA)

Blood transfusion bottles — DIN 58361*

Orthopedic technique: ankle joint pin — DIN 58334

Union of South Africa (SABS)

Steel bedside lockers — SABS 343-1959

United Kingdom (BSI)

Large incinerators for the destruction of hospital waste — BS 3316:1960

621.3 ELECTRICAL ENGINEERING

Australia (SAA)

Radio interference suppression devices — C.145-1960

Domestic electric washing machines — C.163-1960

Finland (SFS)

8 stds for graphical symbols for telecommunication — C.I. 25/32

3 stds for different ferrules for earthing neutral wire in domestic installations — C.V. 57/59

2 stds for distribution boards, single- and three-phase, for flush mounting — C.V. 66/67

Steel wire for overhead lines — C.X.2

France (AFNOR)

Electrotechnical vocabulary, Group 25: Production, transport, and distribution of electric energy — NF C 01-025

Electrotechnical vocabulary, Group 37: Automatic control and regulating equipment — NF C 01-037

Electrotechnical vocabulary, Group 50: Electrochemistry and electrometallurgy — NF C 01-050

Germany (DNA)

Insulating sleeves, fibrous — DIN 40620, Sheet2*

2 stds for insulating sleeves, non-fibrous, dimensions, specifications — DIN 40621, Sheet 1 and 2*

Power transformers: Silica gel breathers — DIN 42562*

Housings for measuring instruments — DIN 43700*

Housings for recording measuring instruments — DIN 43830*

Wires and cables of accurately drawn copper wire — DIN 46431*

Joint boxes for power cables up to 10 kv — DIN 47600, Sheet 4*

Poland (PKN)

Copper anodes — PN H-92910

Brass anodes — PN H-92915

United Kingdom (BSI)

Porcelain and toughened glass insulators for overhead power lines (3.3 kv and upward) — BS 137:1960

Auxiliaries for operations of fluorescent lamps: Capacitors — BS 2818:Part 2:1961

High-voltage post insulators — BS 3297:1960

Photometric integrators — BS 354:1961

Electric lamps for railway signalling — BS 469:1960

621.6 FLUID DISTRIBUTION, STORAGE, CONTAINERS. PIPES. PUMPS

Australia (SAA)

High-tensile carbon-manganese steel cylinders for the storage and transport of permanent gases and high-pressure liquefiable gases — B.113-1960

Alloy steel cylinders for the storage and transport of permanent gases and high-pressure liquefiable gases — B.114-1960

Canada (CSA)

Horizontal underground storage tanks for petroleum products — CSA Z87-1960

Czechoslovakia (CSN)

Screwed pipe joints for liquid fuels and oils — CSN 13 6708

Concrete and reinforced concrete pipes — CSN 72 3129

India (ISI)

Centrifugally cast (spun) iron pressure pipes for water, gas, and sewage — IS:1536-1960

Cast iron pressure pipes for water, gas, and sewage — IS:1537-1960

Asbestos cement pressure pipes — IS:1592-1960

Israel (SII)

Pipe flanges — S.I. 60

Japan (JISC)

4 stds for welded flanges, 5-20 kg/cm² nominal pressure — JIS B 2221/4

Poland (PKN)

Brass tubes, extruded — PN H-74598

Turkey (TSE)

Tempered cast iron pipe fittings — TS 11-1959

Vertically cast iron pipes — TS 14-1959

Centrifugally cast iron bell-and-spigot — TS 15-1959

Cast iron pipe fittings — TS 16-1959

United Kingdom (BSI)

Mild-steel drums (light-duty fixed ends) — BS 814:1961

Carbon steel pipe flanges (over 24 in. nominal size) for the petroleum industry — BS 3293:1960

Oil suction and discharge hose — BS 1435:1960

10-gallon aluminum alloy milk can and lid — BS 3291:1960

665.4/.5 MINERAL OILS, WAXES

Austria (ÖNORM)

Testing of mineral oil for total sulfur content — ÖNORM C 1140

Egypt (EOS)

Benzene 70 and 85 (octane number) — EOS/S 14

Kerosene — EOS/S 15

Gas oil (solar) and diesel fuel — EOS/S 16

Furnace fuel (Mazout) — EOS/S 17

Liquefied butane gas — EOS/S 18

India (ISI)

Aviation turbine fuels, kerosene type — IS:1571-1960

* Available in English

USSR

Light petroleum products. Method for the determination of elemental sulfur content GOST 9494-60

69 BUILDING INDUSTRY

Canada (CSA)

Wooden doors O132.2-1960

Western red cedar shingles, machine-grooved shakes, and hand-split red cedar shakes O118-1960

Wooden double-hung window frames and double-hung pre-fit window units O132.3-1960

Germany (DNA)

Contract procedure for building work. Technical specification for painting work DIN 18363*

Certificates for materials DIN 50049*

Light clay bricks and slabs DIN 18505

India (ISI)

Mason's tools for plaster work IS:1630-1960

Design and construction of wooden stairs IS:1634-1960

Code of practice for fixing and glazing of metal doors, windows, and ventilators IS:1081-1960

Bitumen (plastic) for waterproofing purposes IS:1580-1960

* Available in English

New Zealand (NZSS)

Model building bylaw: Part 10: Masonry construction NZSS 95

Poland (PKN)

Roofing pitch felt PN B-10240

Bitumen-saturated jute building fabric PN B-27615

Portland cement No. 400 PN B-30006

Union of South Africa (SABS)

Code of practice for the waterproofing of buildings SABS 021-1959

United Kingdom (BSI)

Specification for fiber building boards BS 1142:1961

New Books . . .

SCREW THREAD STANDARDS FOR FEDERAL SERVICES, Part III.
National Bureau of Standards Handbook H28 (1957). Amends in part H28 (1944) and in part its Supplement (1950). October 1960. 66 pp. Order from Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 60 cents.

This is the third volume of a series of three into which the 1957 edition of NBS Handbook H28 is divided. It covers acme, stub acme, and buttress threads; rolled threads for screw shells of electric lamp holders and unassembled lamp bases; microscope objective and nosepiece threads; surveying instrument mounting threads; ISO metric threads; miscellaneous threads; Class 5 interference-fit threads; and wrench openings.

The Handbook is the work of the Interdepartmental Screw Thread Committee, which is sponsored by the Department of Defense, Army, Navy, Air Force, and Commerce. Its purpose is to promote uniformity in screw thread standards in the departments concerned. The Handbook is not only based on earlier editions and reports of the National Screw Thread Commission but also on American Standards in the B1 series on screw threads, and the Recommendation approved by the International Organization for Standardization.

PRACTICAL ELECTRICAL WIRING. ***By H. P. Richter. Sixth edition. 592 pp. 5⅜ x 8. 463 illustrations. McGraw-Hill, 327 West 41 Street, New York 36, N.Y. $7.95.***

Practical methods for handling wiring and installation jobs are presented. This new edition shows how to plan and carry out all types of lighting and power-wiring jobs on the farm, in homes, factories, stores, schools, and other structures.

In addition to presenting fundamentals, terminology, basic principles, theory behind practices, and practical wiring instructions, the book includes hundreds of on-the-job tips and shortcut suggestions.

This edition has been revised to be in line with the National Electrical Code (American Standard C1-1959). The latest procedures are reflected in a special section on farm wiring problems, and in another on principles of good lighting. Included is the analysis of wiring sectional ranges and ovens, covered in the 1959 Code for the first time. In addition, the book provides fresh coverage on wiring refrigerating-type hermetic motors, recent types of lighting, and characteristics and procedures of installing the "MI" cable.

. . . Questions

Would the requirements of Section 9.4 of American Standard B9.1-1958, Safety Code for Mechanical Refrigeration, prohibit the use of solder which melts at less than 1000 F for connecting expansion valves that are located in air passages of fan and coil sections?

Paragraph 9.4 means literally that solder which melts at less than 1000 F shall not be used in the air stream of an air-conditioning system. In the case of an expansion valve, if it is desired to use a flare joint or a lower melting point solder, they must be located outside the air stream.

—Reply by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, sponsor for project B9.

NOTE: Questions about American Standard B9.1-1958, or any approved edition of the standard, are referred to an Interpretations Subcommittee of the Sectional Committee when they cannot be answered by the sponsor by reference to earlier interpretations or to the standard itself.

We operate an ice plant and cold storage. The city code for this type of operation is based on American Standard B9-1939. The code requires a certain number of engineers of one or more classes when the plant is in operation. We plan to discontinue our ice operation, at which time fully automatic equipment will be installed in the engine room. Throughout the country we have a number of fully automatic cold-storage plants. Several of these have engine rooms where compressors and all other equipment are fully protected against damage or failure and run unattended.

In these engine rooms in a number of cases, engineers are not used around the clock, but one first-class engineer is employed to supervise maintenance of the plant and equipment. In the ASRE Data Book, a code (formerly ASRE 15) is listed as "ASA B9-1953." Does this code cover an operation as described above, or do you plan to revise it to cover a fully automatic cold-storage operation of this kind?

No edition of the American Standard Safety Code for Mechanical Refrigeration includes information or regulations relative to the operation of refrigeration systems. Whether or not such a system requires a specified number of engineers or operators is a local problem and not one for the standard itself. The current edition of the American Standard is B9.1-1958 (ASRE 15-58). A number of changes were made in the 1958 edition which may affect your operation.

—Reply by American Society of Heating, Refrigerating, and Air Conditiong Engineers, sponsor for project B9.

NEW INTERNATIONAL RECOMMENDATIONS

ISO Recommendations are published by the International Organization for Standardization, and IEC Publications by the International Electrotechnical Commission, Geneva, Switzerland. Copies are available from ASA.

ISO

TESTS FOR COLORFASTNESS OF TEXTILES. ISO R 105. *May 1959. First edition.* $9.00.

Test methods to determine the colorfastness of textiles to 24 agencies known to cause color change in textiles are given in detail, specifying apparatus, reagents, and specimens to be used, the procedure of each individual test, and requirements for the report of the test results. An Appendix lists the sources of supply of materials called for in the tests.

In addition, the general principles of testing are explained for the guidance of users, and the uses and limitations of the methods are pointed out. Procedures common to a number of the methods are discussed briefly. The grey scale for assessing change in color and for assessing staining is described.

COLOR IDENTIFICATION OF MECHANICAL CONTROL CIRCUITS FOR AIRCRAFT. ISO R 130. *September 1959. First edition.* $1.50.

Consists of a chart showing the color combinations to be used to identify the purpose of the different aircraft controls. The colors identify the following controls, both by groups and individually: the principal flying controls, auxiliary flying controls, flight adjusters, engine controls, power plant controls, and the various safety and miscellaneous controls.

DETERMINATION OF WOOL FIBER DIAMETER — PROJECTION MICROSCOPE METHOD. ISO R 137. *January 1960. First edition.* $1.80.

This method describes the procedure and the apparatus and methods to be used in determining the diameter of wool fibers by means of the projection microscope. The method is suitable for wool fibers in any form, and for other fibers of reasonably circular cross section.

TEXTILES. UNIVERSAL YARN COUNT SYSTEM. ISO R 138. *January 1960. First edition.* $0.60.

Defines the Tex System as the universal yarn count system for designating the linear density of fibers, yarns, and other textile products. This is a direct system which expresses the mass of a certain length of fiber, filament, yarn, cord, or rope, and not the length of a certain mass of the textile material.

STANDARD ATMOSPHERES FOR CONDITIONING AND FOR DETERMINING THE PHYSICAL AND MECHANICAL PROPERTIES OF TEXTILES. ISO R 139. *January 1960. First edition.* $0.60.

Specifies methods of preconditioning, conditioning, and testing physical and mechanical properties of textiles. Defines the relative humidity, standard atmosphere, and supplementary standard atmosphere required for textile conditioning.

WRAPPING TEST FOR STEEL WIRE. ISO R 145. *February 1960. First edition.* $0.60.

Specifies the testing machine, test procedure, and test requirements to determine how steel wire reacts when wrapped and unwrapped around a cylinder.

SHIPBUILDING DETAILS. ORDINARY GLASSES FOR SCUTTLES AND LIGHTS. DIMENSIONS. ISO R 153. *March 1960. First edition.* $0.90.

Specifies the nominal diameter of scuttle or of fixed glass, diameter of glass, and diameter of recess, as well as the nominal, maximum, and minimum thicknesses of glass, for use in ships.

SHIPBUILDING DETAILS. MARKING OF ROLLED, DRAWN, AND EXTRUDED PRODUCTS IN LIGHT METALS OR IN LIGHT ALLOYS. ISO R 154. *March 1960. First edition.* $0.60.

Specifies the markings that should be used for identifying all rolled, drawn, and extruded products in light metals or in light alloys, and describes how they should be used.

PIPES OF PLASTIC MATERIALS FOR THE TRANSPORT OF FLUIDS (OUTSIDE DIAMETERS AND NOMINAL PRESSURES). PART I: METRIC SERIES. ISO R 161. *June 1960. First edition.* $0.60.

Applies to circular plastic tubes for the transport of fluids, whatever their method of manufacture, composition, and application. The object of this recommendation is to establish outside diameters and working pressures, and to serve as a guide to manufacturers and users, as well as a basis for specific standards for a given material or application.

COMPOSITION OF ALUMINUM ALLOY CASTINGS. ISO R 164. *July 1960. First edition.* $0.90.

Gives the chemical composition of the alloys in which the principal alloying element is one of the following: copper, magnesium, silicon, or zinc.

IEC

INTERNATIONAL ELECTROTECHNICAL VOCABULARY. GROUP 50: ELECTROCHEMISTRY AND ELECTROMETALLURGY. *IEC Publication 50(50). 1960. Second edition.* $4.80.

Contains some 391 terms and definitions in French and English, together with the equivalent terms in German, Spanish, Italian, Dutch, Polish, and Swedish. Indexes are provided for each of the eight languages used. Terms and definitions are divided into the following sections: general; electric batteries (general); primary batteries; storage batteries; electrodeposition (general); electro-plating; electro-forming; electro-refining; electro-winning; electrolytic alkali and chlorine; electrochemical valves (general); electrolytic capacitors; electrolysis of fused electrolytes.

RECOMMENDED GRAPHICAL SYMBOLS, PART 2: MACHINES, TRANSFORMERS, PRIMARY CELLS, AND ACCUMULATORS. *IEC Publication 117-2. 1960. First edition.* $2.40.

Replaces the former Publications 35 and 42, dealing, respectively, with graphical symbols for heavy- and light-current electrical engineering. When complete, Publication 117 will include symbols for all branches of electrical terminology. Publication 117-2 contains 78 symbols dealing with machines, transformers, primary cells, and accumulators.

NOTE: A list of all IEC publications is now available and can be obtained from ASA at 60 cents each. The list contains a summary of the contents of each publication and includes an alphabetical index. This list is complete to December 31, 1960. Notice of those publications now being printed is given on a loose sheet, inserted in the list.

• NEWS BRIEFS

• HAROLD R. TERHUNE, manager of standards at the ITT Laboratories, International Telephone and Telegraph Corporation, is president of the Standards Engineers Society for 1961. The other officers are: Kenneth W. Truhn, supervisor, administrative engineering, Scintilla Division, Bendix Aviation Corporation, Sidney, N. Y., vice-president; Robert F. Franciose, consultant on drafting standards and documentation, General Electric Company, Schenectady, N. Y., secretary; Everett Woerter, manager, standards department, American Machine & Foundry Company, Stamford, Conn, treasurer.

Mr Terhune was one of the founders of the Society. He is a member of the Company Member Conference of the American Standards Association, and an alternate member on the Graphic Standards Board. He serves on the Standards Committee of the Institute of Radio Engineers, on the Joint AIEE/IRE Standards Committee, and is affiliated with the American Society for Testing Materials, the Metric Association, and the Electronic Industries Association. He was a U.S. delegate to the International Electrotechnical Commission meetings held in Zurich in 1957 and in Madrid in 1959. Last year he received the EIA/IRE award for "stellar accomplishments in the field of electronic symbology and components."

• CONCERNING an exhibition of cargo-handling equipment, the editor of *Distribution Age* commented recently:

"This show had a large variety of special reusable containers. Without exception, all had good possibilities. Sales were being made right and left. Yet, we noticed that the sizes of many of the containers were unusual.

"It would appear that the designers had no knowledge of the fact that the American Standards Association has been trying to bring order out of confusion in the matter of container sizes. If ASA standards [American Standards] gain acceptance—and real strides are being made in that direction—then the purchasers of these containers are buying obsolescence.

"True, the money will not be completely wasted. Even one year's use—perhaps less—of these new containers not only will pay for them but also will bring dividends.

"However, we suggest that container designers get on the ball and work to ASA standards; and that buyers demand the proposed sizes. Why start with obsolescence?"

• A PIONEERING standards activity on the local level is a one-day Engineering Standards Seminar and exhibit being conducted by the New York Section of the Standards Engineers Society. The seminar will be held at the Carnegie International Building, New York, June 5, 1961.

A variety of subjects of practical concern relative to standards, design, drafting, reliability, data systems, and testing will be considered during the morning and afternoon sessions. In the evening, one of the highlights of the seminar will be a session on the proposed revision to Military Specification MIL-D-70327. There will also be a special showing of the Department of Defense motion picture "Dial MIL-D-70327." Registration is in advance as the number attending must be limited. Those interested may write to The Standards Engineers Society, 170 Livingston Street, New Providence, N. J.

• THE AMERICAN Society for Testing Materials has named Frank L. LaQue as one of its representatives on the Standards Council of the American Standards Association. Mr LaQue is vice-president of the International Nickel Company, Inc, and manager of the Development and Research Division.

Mr LaQue has specialized in corrosion and corrosion-resisting materials since his graduation as Bachelor of Science in Chemical and Metallurgical Engineering from Queen's University, Kingston, Ontario, in 1927. It was under his leadership that Inco's well known corrosion testing stations were established at Kure Beach and Harbor Island, North Carolina.

Mr LaQue is active in many national organizations. Currently vice-president of the Electrochemical Society, he has served as president of the American Society for Testing Materials and of the National Association of Corrosion Engineers. He is on the 1961 Technical Board Executive Committee of the Society of Automotive Engineers and is chairman of the SAE General Materials Council. He is also a member of the Executive Committee of the Welding Research Council, and a past chairman of the Corrosion Research Council.

Mr LaQue also is taking an active part in the nation's planning for scientific development. He is a member of the Advisory Committee on Engineering and Related Standards of the National Bureau of Standards, and chairman of the Advisory Panel for the Division of Metallurgy. He is associated with the National Research Council of the National Academy of Sciences as chairman of the Subcommittee on Corrosion, and also serves as an advisor to the Metallurgical Departments of Case Institute of Technology and the University of Pennsylvania

In recognition of his outstanding work, Mr LaQue was recipient of the Frank Newman Speller Award presented by the National Association of Corrosion Engineers in 1949. He delivered the ASTM Edgar Marburg Lecture in 1951.

Frank L. LaQue

Well known as a speaker and author, Mr LaQue is best known for his works on corrosion. His book, *Corrosion in Action*, published in 1955, was the basis for a film of the same title, which has been shown to student and technical society audiences throughout the world.

• W. B. McCLELLAND has been selected by the American Material Handling Society to serve as its first full-time headquarters secretary. Mr McClelland has long been associated with the field of material handling, having operated his own material handling equipment firm for ten years. As chief of the Automotive Division, Cleveland Ordnance District, U.S.

Army, he helped organize supply depots. He has served as assistant director of the Material Handling Training Conferences held each summer and as editor of *Material Handling Engineering.*

The American Material Handling Society is co-sponsor of Sectional Committee MH5, Sizes of Shipping Containers, and of MH6, Pictorial Marking of Handling Instructions for Goods in Transit. It is sponsor of MH8, Heights and Clearances for Loading Platforms.

• "WITHIN the broadest concept, standardization, whether or not it is so-called, embraces not only engineering, but also certain fields outside of engineering—accounting, purchasing, office systems, sales, and many others. The classical concept of standardization, however, embraces such things as dimensions, sizes, classes, materials, parts, designs, assemblies, methods, procedures, safety, and such—all bearing an engineering connotation. In fact, because of this classical concept, many companies choose to call their standards 'Engineering Standards', thereby distinguishing them from the broader aspects of standardization." *J. G. Henderson, head, Standards Department, Design and Construction, Union Carbide Chemicals Company, A Division of Union Carbide Corp.*

• INFORMATION concerning electrical measuring instruments used in connection with ionizing radiation is currently being gathered by four committees for presentation later this year at a meeting of the International Electrotechnical Commission's (IEC) Technical Committee 45.

According to the U.S. National Committee of the IEC, the four projects under way concern terminology, safety requirements, interchangeability, and reactor instrumentation. Efforts will be made to have project recommendations prepared in time for a Fall meeting of IEC/TC 45. The overall report would then be submitted to each of the 35 member nations of the IEC for formal ratification.

Chairman of the IEC/TC 45 Committee on Electrical Measuring Instruments Used in Connection with Ionizing Radiation is W. H. Hamilton of the Westinghouse Electric Corporation. Nationals of France, the United Kingdom, and Germany hold chairmanship, respectively, of the terminology, safety requirements, and interchangeability projects. Dr A. B. Van Rennes, of United Research, Inc, Cambridge, Mass., is chairman of the reactor instrumentation group.

Mr Van Rennes was chief U.S. delegate at the IEC/TC 45 committee meeting last November in New Delhi, India, when the four project groups were formed. At the same time, the committee approved a study of standardization activities in the field of nuclear instrumentation, the first action being a review of a draft recommendation on safety prepared by the secretariat, the German National Committee of IEC.

The meeting of IEC/TC 45 will be held in Paris, France, early in October.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

BUILDING AND CONSTRUCTION

Gypsum Plasters, Specifications for, ASTM C 28-60; ASA A49.3-1961 (Revision of ASTM C 28-59; ASA A49.3-1959) $0.30
Chemical and physical properties of gypsum ready-mixed plaster, gypsum neat plaster, gypsum wood-fibered plaster, gypsum bond plaster and gaging plaster for finish coat.
Sponsor: American Society for Testing Materials

Gypsum Wallboard, Specifications for, ASTM C 36-60; ASA A69.1-1961 (Revision of ASTM C 36-58; ASA A69.1-1959) $0.30
Covers gypsum wallboard designed to be used without the addition of plaster for walls, ceilings, or partitions, and which affords a surface suitable to receive decoration.
Sponsor: American Society for Testing Materials

Gypsum and Gypsum Products, Methods of, ASTM C 26-60; ASA A70.1-1961 (Revision of ASTM C 26-59; ASA A70.1-1959) $0.50
Covers procedures for chemical analysis and physical testing of gypsum and gypsum products.
Sponsor: American Society for Testing Materials

Sampling and Testing Structural Clay Tile, Methods of, ASTM C 112-60; ASA A83.1-1961 (Revision of ASTM C 112-52; ASA A83.1-1953) $0.30
Test and sampling procedures for weight determination, compressive strength, absorption, and freezing and thawing.
Sponsor: American Society for Testing Materials

Facing Brick (Solid Masonry Units Made from Clay or Shale), Specifications for, ASTM C 216-60; ASA A99.1-1961 (Revision of ASTM C 216-57; ASA A99.1-1958) $0.30
Specifications covering three types of brick in Grade SW, intended for use where a high resistance to frost action and weathering is desired, and three types in Grade MW, intended for use where moderate resistance to frost is permissible.
Sponsor: American Society for Testing Materials

GAS-BURNING APPLIANCES

Approval Requirements for Gas Water Heaters, Volume I, Automatic Storage Type Water Heaters with Inputs Less Than 50,000 Btu per Hour, Z21.10.1-1960 (Revision of Z21.10.1-1959, Volume I) $2.00

HIGHWAY TRAFFIC

Method of Recording and Measuring Motor Vehicle Fleet Accident Experience, D15.1-1960 $0.80
Definition of motor vehicle accidents; evaluation of exposure to accidents in terms of mileage; method for computing frequency of motor vehicle fleet accidents; and instructions for the classification of special cases.
Sponsors: National Safety Council; American Trucking Associations

MECHANICAL

Miniature Screws, B18.11-1961 $1.00
Establishes head types, dimensions, and lengths of slotted head miniature screws threaded in conformance with

American Standard B1.10-1958, Unified Miniature Screw Threads.

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

NUCLEAR ENERGY

Radiation Protection in Uranium Mines and Mills (Concentrators), N7.1-1960 $2.00

Safety standard for the protection of persons employed in facilities associated with the production and utilization of fissionable materials.

Sponsors: Atomic Industrial Forum; National Safety Council

PETROLEUM PRODUCTS AND LUBRICANTS

Knock Characteristics of Motor Fuels Below 100 Octane Number by the Motor Method, Method of Test for, ASTM D 357-60; ASA Z11.37-1960 (Revision of ASTM D 357-59; ASA Z11.37-1960) $0.30

Describes test for determining knock characteristics, in terms of ASTM Motor octane numbers, of fuels for use in spark-ignition engines.

Knock Characteristics of Motor Fuels Below 100 Octane Number by the Research Method, Method of Test for, ASTM D 908-60; ASA Z11.69-1960 (Revision of ASTM D 908-59; ASA Z11.69-1960) $0.30

Describes test for determining knock characteristics in terms of ASTM research octane numbers, of fuels for use in spark-ignition engines.

Sponsor: American Society for Testing Materials

PHOTOGRAPHY

Speed of Reversal Color Films for Still Photography, Method for Determining, PH2.21-1961 $1.00

This method enables the determination of American Standard speed (arithmetic and logarithmic) of reversal color films for still photography that are intended to be viewed on a transparency illuminator or viewed by projection as slides. American Standard speeds are directly applicable to exposure meters, exposure computers, and exposure tables.

Sponsor: Photographic Standards Board

TEXTILES

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics, ASTM D 462-59; ASA L14.28-1961 (Revision of ASTM D 462-53; ASA L14.28-1954) $0.30

General Methods of Testing Woven Fabrics, ASTM D 39-59; ASA L14.68-1961 (Revision of ASTM D 39-49; ASA L14.68-1951) $0.30

Method of Test for Number of Neps in Cotton Samples, ASTM D 1446-59T; ASA L14.97-1961 (Revision of ASTM D 1446-53T; ASA L14.97-1957) $0.30

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

SAFETY

Safety Requirements for the Storage and Handling of Anhydrous Ammonia, K61.1-1960 $1.00

Safety requirements for the design, construction, location, installation, and operation of systems using anhydrous ammonia (not applicable to refrigerating and air-conditioning systems). Includes requirements for portable and stationary containers and systems mounted on farm vehicles for application of ammonia to the soil.

Sponsor: Compressed Gas Association

In Process . . .

As of April 10, 1961

BUILDING AND CONSTRUCTION

In Standards Board

Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units, Specifications for, ASTM C 126-60T; ASA A101.1- (Revision of ASTM C 126-59T; ASA A101.1-1960)

Sponsor: American Society for Testing Materials

Asphalt-Saturated Roofing Felt for Use in Waterproofing and in Constructing Built-Up Roofs, Specifications for, ASTM D 226-60; ASA A109.2- (Revision of ASTM D 226-56; ASA A109.2-1956)

Asphalt-Saturated Asbestos Felts for Use in Waterproofing and in Constructing Built-Up Roofs, Specifications for, ASTM D 250-60; ASA A109.4- (Revision of ASTM D 250-56; ASA A109.4-1956)

Woven Cotton Fabrics Saturated with Bituminous Substances for Use in Waterproofing, Specifications for, ASTM D 173-60; ASA A109.12- (Revision of ASTM D 173-44; ASA A109.12-1955)

Sponsor: American Society for Testing Materials

Refractory Materials, Methods of Chemical Analysis, ASTM C 18-60; ASA A111.2- (Revision of ASTM C 18-52; ASA A111.2-1955)

Sponsor: American Society for Testing Materials

CONSUMER GOODS

In Standards Board

Liquid Toilet Soap, Specifications for, ASTM D 799-60T; ASA K60.14- (Revision of ASTM D 799-51; ASA K60-14-1952)

Sponsor: American Society for Testing Materials

CINEMATOGRAPHY

In Standards Board

35mm Photographic Sound Motion-Picture Film, Usage in Projector, PH22.3- (Revision of PH22.3-1954)

16mm 3000-Cycle Flutter Test Film, Photographic Type, PH22.43- (Revision of PH22.43-1953)

Intermodulation Tests for 16mm Variable-Density Photographic Sound Prints, PH22.51- (Revision of Z22.51-1946)

Nomenclature for Motion-Picture Film Used in Studios and Processing Laboratories, PH22.56- (Revision of Z22.56-1947)

Screen Luminance for Indoor Theaters, PH22.124-

Sponsor: Society of Motion Picture and Television Engineers

Reaffirmation Being Considered

A and B Windings of 16mm Film, Perforated One Edge, PH22.75-1953

Sponsor: Society of Motion Picture and Television Engineers

DRAWINGS, SYMBOLS AND ABBREVIATIONS

In Standards Board

Guide for Selecting Greek Letters Used as Letter Symbols for Engineering Mathematics, Y10.17-

Sponsor: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standards Approved

Sampling Electrical Insulating Oils, Methods of, ASTM D 923-59; ASA C59.21-1961 (Revision of ASTM D 923-56; ASA C59.21-1958)

Ozone-Resistant Rubber Insulating Tape, Specification for, ASTM D 1373-59T; ASA C59.37-1961 (Revision of ASTM D 1373-57T; ASA C59.37-1958)

Sponsor: American Society for Testing Materials

In Standards Board

Wet-Process Porcelain Insulators (Suspension Type), C29.2- (Revision of C29.2-1955)

Wet-Process Porcelain Insulators (Spool Type), C29.3- (Revision of C29.3-1955)

Wet-Process Porcelain Insulators (Strain Type), C29.4- (Revision of C29.4-1955)

Wet-Process Porcelain Insulators (Low- and Medium-Voltage Pin Type), C29.5- (Revision of C29.5-1955)

Wet-Process Porcelain Insulators (High-Voltage Pin Type), C29.6- (Revision of C29.6-1955)

Wet-Process Porcelain Insulators (High-Voltage Line-Post Type), C29.7- (Revision of C29.7-1955)

Wet-Process Porcelain Insulators (Apparatus-Cap and Pin Type), C29.8- (Revision of C29.8-1957)

Wet-Process Porcelain Insulators (Apparatus-Post Type), C29.9- (Revision of C29.9-1957)

Sponsor: Electrical Standards Board

Fuseholders, Safety Standard for, C 33.10-

Sponsor: Underwriters' Laboratories

Schedules of Preferred Ratings for Power Circuit Breakers, C37.6- (Revision of C37.6-1959)

Sponsor: Electrical Standards Board

Reaffirmation Being Considered

Volume Measurements of Electrical Speech and Program Waves, C16.5-1954

Antennas, Methods of Testing, C16.11-1949

Frequency-Modulation Broadcast Receivers, C16.12-1949, with supplement C16.12a-1951, Methods of Testing for Effects of Mistuning and Downward Modulation

Vehicular Communications Receivers, Methods of Testing, C16.18-1951

Amplitude-Modulation Broadcast Receivers, Methods of Testing, C16.19-1951

Television Signal Levels, Resolution, and Timing of Video Switching Systems, Methods of Measurement, C16.20-1951

Aspect Ratio and Geometric Distortion of Television Cameras and Picture Monitors, Methods of Measurement, C16.-23-1954

Sponsor: Institute of Radio Engineers

Designation System for Metal Electron Tube Shells, C60.4-1950

Rating Values of Interelement Capacitances, C60.8-1952

Sponsor: Joint Electron Devices Engineering Council

Withdrawal Being Considered

Electron Tubes, Methods of Testing, C60.5-1952

Gas-Filled Radiation Counter Tubes, Methods of Testing, C60.11-1954

Noise in Electron Devices, Methods of Measuring, C60.13-1954

Sponsor: Electron Tube Council of the Joint Electron Device Engineering Council

American Standard Withdrawn

Fabricating Laminated Plastics, Practice for, C59.17-1949

Sponsor: American Society for Testing Materials

MATERIALS HANDLING

In Board of Review

Freight Containers (Nominal Van Container Sizes), Specifications for, MH5.1-

Sponsors: American Material Handling Society; American Society of Mechanical Engineers

MATERIALS AND TESTING

In Standards Board

Rockwell Hardness of Plastics and Electrical Insulating Materials, Method of Test for, ASTM D 785-60T; ASA K65.3- (Revision of ASTM D 785-51; ASA K65.3-1959)

Specific Gravity of Plastics, Methods of Test for, ASTM D 792-60T; ASA K65.8- (Revision of ASTM D 792-50; ASA K65.8-1959)

Sponsor: American Society for Testing Materials

MECHANICAL

American Standard Approved

Multiple V-Belt Drives, Specifications for, B55.1-1961

Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association

In Standards Board

Addendum B3.11a- to American Standard Method of Evaluating Load Ratings for Ball and Roller Bearings, B3.11-1959

Sponsor: Anti-Friction Bearing Manufacturers Association

Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines, Specifications for, ASTM B 16-60; ASA H8.1- (Revision of ASTM B 16-58; ASA H8.1-1959)

Sponsor: American Society for Testing Materials

MEDICAL

In Standards Board

Anesthetic Equipment: Endotracheal Tube Connectors and Adapters, Z79.2-

Sponsor: American Society of Anesthesiologists

METALLURGY

In Standards Board

Zinc-Coated (Galvanized) Steel Tie Wires, Specification for, ASTM A 112-59; ASA G8.4- (Revision of ASTM A 112-33; ASA G8.4-1935)

Zinc Coating (Hot-Dip) on Iron and Steel Hardware, Specifications for, ASTM A 153-60; ASA G8.14- (Revision of ASTM A 153-59; ASA G8.14-1959)

Sponsor: American Society for Testing Materials

Uncoated Wrought Iron Sheets, Specifications for, ASTM A 162-60T; ASA G23.1- (Revision of ASTM A 162-39; ASA G23-1939)

Sponsor: American Society for Testing Materials

Gray Iron Castings, Specifications for, ASTM A 48-60T; ASA G25.1- (Revision of ASTM A 48-56; ASA G25.1-1956)

Sponsor: American Society for Testing Materials

Nickel-Steel Plates for Boilers and Other Pressure Vessels, Specifications for, ASTM A 203-60; ASA G33.1- (Revision of ASTM A 203-56; ASA G33.1-1956)

Sponsor: American Society for Testing Materials

Mild-to-Medium-Strength Carbon-Steel Castings for General Application, Specification for, ASTM A 27-60; ASA G50.1- (Revision of ASTM A 27-58; ASA G50.1-1959)

Sponsor: American Society for Testing Materials

High-Strength Steel Castings for Structural Purposes, Specifications for, ASTM A 148-60; ASA G52.1- (Revision of ASTM A 148-58; ASA G52.1-1959)

Sponsor: American Society for Testing Materials

Electrodeposited Coatings of Lead on Steel, Specifications for, ASTM B 200-60; ASA G53.8- (Revision of ASTM B 200-55T; ASA G53.8-1956)

Sponsor: American Society for Testing Materials

MISCELLANEOUS

In Standards Board

Thermometers, Specifications for, ASTM E 1-60; ASA Z71.1- (Revision of ASTM E 1-60; ASA Z71.1-1960)

Sponsor: American Society for Testing Materials

American Standard Reaffirmed

Rules for Rounding Off Decimal Values, Z25.1-1940(R1961)

PHOTOGRAPHY

American Standards Approved

Selective Transmission of a Photographic Lens, Test Method for, PH3.37-1961
Sponsor: Photographic Standards Board

Converting Weights and Measures for Photographic Use, Method for, PH4.6-1961 (Revision of PH4.6-1953)

Bite of Film-Processing Clips for Roll and Dental Films, Dimensions for, PH4.15-1961 [Revision of PH4.15-1945(R1954)]

Total Hardness of Water for Photographic Processing, Method for Determining, PH4.28-1961

Photographic Grade Ammonium Chloride, Specification for, PH4.28-1961 (Revision of PH4.183-1953)

Photographic Grade Ammonium Sulfate, Specification for, PH4.184-1961 (Revision of PH4.184-1953)

Photographic Grade Sodium Carbonate Monohydrate, Specification for, PH4.-227-1961 (Revision of PH4.227-1954)

Photographic Grade Sodium Carbonate, Anhydrous, Specification for, PH4.228-1961 (Revision of PH4.228-1954)

Photographic Grade Sodium Tetraborate, Decahydrate, Specification for, PH4.-230-1961 (Revision of PH4.230-1954)

Photographic Grade Sodium Metaborate, Octahydrate, Specification for, PH4.-231-1961 (Revision of PH4.231-1954)

Photographic Grade Sodium Tetraborate, Pentahydrate, Specification for. PH4.-233-1961 (Revision of PH4.233-1954)

Photographic Grade Sodium Sulfite, Anhydrous, Specification for, PH4.275-1961 (Revision of PH4.275-1952)

Sponsor: Photographic Standards Board

In Standards Board

100-Foot Reels for Processed 16mm and 35mm Microfilm, Dimensions for, PH5.6-

Sponsor: American Library Association

Speed Classifications for Intraoral Dental Radiographic Film: Diagnostic Grade, PH6.1-

Sponsor: American Dental Association

PIPE AND FITTINGS

In Standards Board

Standard Strength Unglazed Clay Pipe, Specifications for, ASTM C 261-60T; ASA A106.4- (Revision of ASTM C 261-59T; ASA A106.4-1960)

Clay Pipe, Methods of Testing, ASTM C 301-60T; ASA A106.5- (Revision of ASTM C 301-55; ASA A106.5-1955)

Sponsor: American Society for Testing Materials

AMERICAN STANDARDS PROJECTS

Standardization and Unification of Screw Threads, B1—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

CORRECTION

The following errors in American Standard B1.5-1952, Acme Screw Threads, should be corrected in all copies of the standard:

In Table 21, page 33, last column (5" Nom. Dia, 2tpi)

Under "Internal Threads:"

Classes 5C and 6C, Major Dia, min
Change 4.4963 to 4.9463

Class 5C, Major Dia, max
Change 4.5041 to 4.9541

Class 6C, Major Dia, max
Change 4.5008 to 4.9508

Safety in the Construction Industry, A10—

Sponsors: American Institute of Architects; National Safety Council

Fourteen subcommittees are working on a revision of American Standard A10.2-1944, Safety Code for Building Construction. The standards, when completed, will be numbered individually and published as separate documents.

Notice

• Remember—the Company Member Conference Spring Meeting, June 1 and 2, Pick-Congress Hotel, Chicago. Write Henry Lamb, ASA, for program and reservations.

The subcommittees and their chairmen are:

Workmen's elevators; elevators. G. H. Reppert, National Elevator Manufacturing Industry

Derricks and hoists. Vacant.

Building concrete construction, masonry, steel erection, including curtain wall, ornamental and miscellaneous iron work; painting. C. F. Murphy, Jr, American Institute of Architects, Naess & Murphy, Chicago

Tunnels, shafts, and caissons; compressed air. Henry T. Perez, *Construction Methods & Equipment* magazine.

Power-actuated tools, demolition, blasting, piling, including marine construction. A. L. Schmuhl, manager, Accident Prevention Department, Associated General Contractors, Washington, D.C.

Welding, flammable gasses and liquids. A. N. Kugler, Technical Activities Corporation, Air Reduction Sales Co., New York.

Dredging, marine equipment. M. A. Foreman, U.S. Army Corps of Engineers, New York.

Equipment and personnel in proximity to high-voltage lines. Frederick H. Deeg, safety engineer, National Association of Mutual Casualty Companies, Chicago.

Signs and barricades, street and road construction (except paving). Dale Medsker, Dale Medsker & Associates, Atlanta, Ga.

Ladders, protective equipment, handling and storing materials, temporary floors, stairs, railings and toe-boards. Robert L. Moore, director of engineering division, Lumbermen's Mutual Casualty Co., Chicago.

Fire protection. Frank W. Marcaccio, chief, Division of Industrial Inspection, Rhode Island Department of Labor, Providence, R.I.

Protection to the public, pressure vessels, and fired boilers. Paul E. Baseler, executive secretary, Building Conference of America, New York.

Scaffolding, excavation. Sheldon W. Homan, U.S. Department of Labor, Bureau of Labor Standards, Washington, D.C.

Heavy equipment, equipment upkeep. Vacant.

Cableways and conveyors, street and road paving, batch plants. Vacant.

Reports of subcommittee progress were presented to Sectional Committee A10 at its meeting March 23.

The A10 subcommittee on workmen's elevators meets to consider recommendations for inclusion in a new edition of the Safety Code for Building Construction—G. H. Reppert, chairman, in shirtsleeves at left.

Elevators, Dumbwaiters, and Escalators, A17—

Sponsors: American Institute of Architects; American Society of Mechanical Engineers; National Bureau of Standards

A correction should be made in the newly published American Standard Practice for the Inspection of Elevators, Inspectors Manual, A17.2-1960. Paragraph 2 of Item 7A, page 18, should read (italics indicate corrected additions to the original paragraph):

"On doors or gates equipped with interlocks which are unlocked automatically by retiring cams or similar devices, when the car is in a landing *or leveling* zone, place the car at each landing at such a position above and below the landing that the automatic unlocking device on the car cannot

release the interlock and determine that these positions do not exceed 18 in. above or below the landing, *or 30 in. where an automatic leveling device is used.* Then follow the procedure outlined in the previous paragraph."

Power Switchgear, C37—

Sponsor: Electrical Standards Board

The committee's activities on switchgear standards for the past 15 months have been described in a publication identified as C37/153. The document contains the scope, membership of the sectional committee, the committee's working procedure, and the status of each approved and proposed American Standard. It also shows the status of the international activity on switchgear standards through the International Electrotechnical Commission. A list of current American Standards and IEC standards on switchgear is included.

This publication has already been distributed to approximately 600 individuals in the United States who are active or closely interested in switchgear standardization.

V. L. Cox, General Electric Company, Philadelphia, Pa., chairman of Sectional Committee C37, has commented: "This publication will be useful in acquainting the many committees, and user and manufacturer organizations, with the status of standards work on switchgear products, and the importance of this work in our economy."

Copies of C37/153 can be obtained from the American Standards Association without charge.

Safety Rules for Installing and Using Electrical Equipment in Metal Mines, M24—

Sponsor: American Institute of Electrical Engineers

L. H. Harrison, U.S. Bureau of Mines, new chairman of Sectional Committee M24, reports that a revision of the 1932 standard is now under way. Little progress had been made since preparation of a third draft of a revised edition in 1957, due to the retirement and illness of the former chairman and secretary. Now, it is planned to complete the work as soon as possible. Mr Harrison explains that the committee expects "to present to the industry a set of practical working standards that will reflect the best modern electrical practice."

L. H. Harrison

H. W. Lydick, Westinghouse Electric Corporation, Phoenix, Arizona, is the new secretary of the committee.

Mr Harrison has been with the Bureau of Mines since 1945, having started his career as an electrical engineer with the Hudson Coal Company, Scranton, Pa. His first assignment for the Bureau was at Pittsburgh where he worked on a special investigation of radio communication through the earth. For some years he was mining electrical engineer for the Bureau at Birmingham, Alabama. Since 1955, he has been with the health and safety activity of the Bureau in Washington, D. C.

Mr Harrison has been responsible for a number of devices for which the Government has been granted U.S. patents. These include a grounding device using the principle of parallel resonance, a short-circuit device for direct-current circuits, and a device for determining polarity of commutating fields. Patent applications are being processed for other devices, including a ground-circuit monitoring scheme.

Nuclear Instrumentation, N3—

Sponsor: Institute of Radio Engineers

An index of nuclear instrumentation and control standards, prepared through the work of the N3 committee, lists by subjects the standards in this field now available, under way, or proposed for future work. The list shows the society or agency responsible for the standard and the status of the work. In addition to the subject list, the societies and agencies working on nuclear standardization and control are listed alphabetically, with a summary of the work they are doing. Names of the chairmen, and in some cases other officers, are included.

An appendix gives the title, scope, and subcommittees of the ASA sectional committees active in nuclear standardization, with the names of their officers.

Copies of the Index of Nuclear Instrumentation and Control Standards can be obtained without charge from L. G. Cumming, secretary, ASA Sectional Committee N3, care of Institute of Radio Engineers, 1 East 79 Street, New York 1, N.Y.

Data Processing Machines (including Digital Computers), X3—

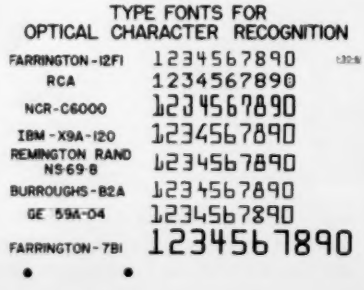
Sponsor: Data Processing Group, Office Equipment Manufacturers Institute

Development of an American Standard for the printed characters used in data processing is progressing. Brian W. Pollard, chairman of the Subcommittee on Character Recognition Standards, X3-1, reports that the subcommittee expects to complete its work by the end of 1961.

The subcommittee is working to provide a standard numeric or alphanumeric font that can be recognized, identified, and utilized by data processing systems, and that also can be read or recognized by the average person without special knowledge or prior instruction. The work also includes printing specifications for data processing operations.

In developing methods of reading such a font by machine, the subcommittee is concentrating on the "optical method." In this method, a character is scanned by a beam of light. The reflected light, whose intensity varies, is detected by a light-sensitive device and converted into electrical wave shapes. These waveforms, in turn, are analyzed and converted into signals appropriate for processing the information.

Subcommittee X3-1 has three task groups in action. They are working on (1) a suitable font or fonts; (2) printing requirements and printer capabili-



ties; (3) format and applications. A total of 48 representatives from 18 companies are active in this work.

The following criteria will guide the design of character shapes:

(a) Characters will be constructed on a 5 by 9 grid.

(b) Characters will have uniform width.

(c) Characters will have strong right edges.

(d) Characters will contain a minimum of serifs and noncritical radii.

(e) They will be usable with 10 per inch printing.

(f) They will be restricted to two sizes and in proportion.

(g) Abstract symbols will be unaltered by 180 deg rotation and will not resemble alphabetical characters.

(h) Strokes of each character will be uniform and critical horizontal and vertical strokes will not occur in adjacent matrix rows or columns.

Mr Pollard explains the implication of the subcommittee's work as follows: "By developing standards, the data processing industry will have a base from which to develop the wide range of equipment needed to meet the requirements of the users. At a time of critical technical manpower shortage, the industry will avoid unnecessary duplication of effort in the determination of basic parameters and concepts. By standardization it will be possible for equipment manufactured by the various companies to communicate with one another."

Drawings and Drafting Practice (Exclusive of Architectural Drawings), Y14—

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

Standard drafting practices for power switchgear and industrial control are nearing completion. These will be used to supplement the section of the American Standard Drafting Manual on electrical diagrams, American Standard Y14.15-1960.

Two parts of the power switchgear drafting standard are now being circulated for comment: 15-6, Single-Line Diagrams (Power Switchgear and Industrial Control), and 15-9, Schematic Diagrams (Power Switchgear and Industrial Control).

Copies of the draft sections can be obtained without charge from George C. Finster, Standards Manager, American Society of Mechanical Engineers, 29 West 39th Street, New York 18, N. Y.

STANDARDS ALIVE

A Guest Column

by ARTHUR S. JOHNSON

SOME SAFETY PROGRAMS seem to emphasize personnel supervision to the exclusion of physical controls. For instance: One large association of manufacturers declares safety to be a function of its employees' benefits committee. One of the largest industrial concerns reveals that its safety program is limited entirely to supervision. And one faction in the American Society of Safety Engineers would practically divorce itself from the engineering phase of its society's objectives.

To be sure, the unsafe acts of people do underlie events that end in accidents; and personnel safety activities have contributed to pride in accomplishment and have improved industrial relations. But it has not been demonstrated that elimination of unsafe acts has ever provided absolute control of accidents; nor that even nearly complete removal of unsafe acts has been solely responsible for the long periods of "no accidents" logged by many companies.

Actually, concerns with very low accident occurrence have built safety into their operations and maintenance, where it belongs. They have applied thought and skill to the design of the machine and its accessories so that the worker is protected in spite of himself. To them, guarding has ceased to be a safety problem because it has been attended to. In the well engineered, safe plant, unsafe human acts may remain in some measure, but their incidence becomes less critical. Where the physical phase of accident prevention has been neglected, on the other hand, accidents still continue to be high in frequency and extreme in severity.

Statistically, the total accident picture is much improved; however, fatalities and serious injuries are continuing as a result of accidents in which physical factors have not been brought up to a safe standard. This is of serious concern to employers as well as to employees. More and more, third-party suits for very high damages, alleging negligence by failure to make the operation safe, are being filed following industrial injuries. In these cases, evidence of failure to comply with codes and standards can be very damaging. Accident prevention, it should be remembered, is a process of management aimed to prevent recurrence of accidents. It is urged that management use standards, especially American Safety Standards, as criteria for the safe control of work environment and operations.

There is continuing concern that states will enlarge upon their safety regulations. There is special concern that uniform regulations of federal government origin may take over. But industrial safety can and should be a matter of self-discipline. Management can predetermine whether or not any particular operation is safe. It can best do this by deciding upon the standard to be used, through the American Standards Association's consensus principle, and then following this standard.

MR JOHNSON is vice-president in charge of engineering of the American Mutual Liability Insurance Company.

A Milestone in Accident Prevention

FOR MOTOR VEHICLE FLEETS—

how to compile your accident frequency rate so your experience can be compared with others

USING TWO NEW AMERICAN STANDARDS

You can compile your frequency rate and check on the extent of your accident problem

You can determine the need for an accident prevention program

You can check on the relative effectiveness of the accident prevention work you are doing now

You will have statistics for the National Fleet Safety Contest, figured in line with new rules being drafted by the National Safety Council—new rules conforming to these standards

If you are not sure whether an accident should be counted, use the Appendix. This tells you in detail, with examples, what *is* and what *is not* a motor vehicle fleet accident.

Note: An interpretations committee has been organized to consider actual cases on which you may have questions.

NOW AVAILABLE

- **American Standard Method of Recording and Measuring Motor Vehicle Fleet Accident Experience, D15.1-1960**
- **American Standard Method of Recording and Measuring Motor Vehicle Fleet and Passenger Accident Experience D15.2-1960**

Each 80 cents

Sponsors: National Safety Council; American Trucking Associations, Inc.

Order from

AMERICAN STANDARDS ASSOCIATION

10 East 40 Street, New York 16, N.Y.